2003 annual fish and shellfish report

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FISH AND SHELLFISH REPORT

submitted to

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EXECUTIVE SUMMARY

The Massachusetts Water Resources Authority (MWRA) continued its monitoring program for fish and shellfish in 2003. The 2003 activities represent the latest year in a continuing monitoring program that supports evaluation of the MWRA effluent discharged into Massachusetts Bay and also represents the third year of post-discharge monitoring. The goal of the fish and shellfish monitoring program is to obtain data that may be used to assess the environmental impact of the effluent discharge on Massachusetts Bay, and to evaluate the facility's compliance against the NPDES effluent discharge permit.

The specific objective of the 2003 fish and shellfish monitoring program was to define the post-discharge condition of three indicator species: winter flounder (*Pseudopleuronectes americanus*), lobster (*Homarus americanus*), and blue mussel (*Mytilus edulis*) and to use these data to answer the fish and shellfish monitoring questions included in the original Outfall Monitoring Plan (MWRA 1991, updated in 1997). Flounder and lobster specimens were collected from three core sites in Boston Harbor and the Bays: Deer Island Flats (DIF), the Outfall Site (OS), and East Cape Cod Bay (ECCB). Flounder were also collected at two ancillary sites, Broad Sound (BS) and off Nantasket Beach (NB), to provide information on flounder in the general area of the former Deer Island outfall. Caged mussels, collected from Stover's Point, ME, were deployed at sites in Boston Harbor and the bays to evaluate bioaccumulation potential. All collection and deployment sites are discussed in the 2003 Fish and Shellfish Report in terms of chemical contaminants. Histological parameters are considered in flounder only.

Post-discharge conditions of the species collected were characterized in terms of biological parameters (*e.g.*, length, weight, age), external condition, and concentrations of organic and inorganic compounds in both edible and liver/hepatopancreas tissue. Flounder livers were examined for the extent and severity of lesions. The monitored parameters were examined for spatial distribution among stations in 2003 and inter-annual variations from previous monitoring data. In addition, body burdens of certain pesticides, PCBs, lead, and mercury were compared to FDA Action Limits and Contingency Plan (MWRA 2001a) threshold values to evaluate potential risk or trends.

Flounder

Winter flounder were collected at the five established monitoring locations in 2003. The mean length and weight of fish collected at DIF were higher than the other stations, although flounder collected at OS had the highest average age. The 2003 survey results showed the presence of ulcers on the blind surface of many flounder, especially in flounder collected from the Boston Harbor-western Massachusetts Bay region. These ulcers have not been noted in such marked numbers in previous pre- and post-baseline years. Additional winter flounder studies have been planned in 2004 to increase the number of sampling stations and surveys for which winter flounder will be examined for external lesions. An in-depth microbiological study of the ulcer lesions will also be conducted. While low at all stations, a fin erosion index was higher at Nantasket Beach (NB) and Eastern Cape Cod Bay (ECCB) than other stations.

Age-corrected hydropic vacuolation prevalence suggests that there has been a steady system-wide reduction in the contaminant–associated pathology in winter flounder in the past decade. Flounder liver histology results indicate the prevalence of tubular and centrotubular hydropic vacuolation (CHV) was highest at DIF in 2003. During the 2003 survey, a marked prevalence of ulcers was observed on the blind surface of a number of flounder.

Fifteen winter flounder were collected at each of three locations (DIF, OS, ECCB) for chemical analysis of edible and liver tissues. Mean 2003 concentrations of organic compounds in fillets were generally highest at DIF and lowest at ECCB, but low spatial variation in these concentrations was noted among the

stations. Levels of organic contaminants and metals in both flounder tissue and liver for 2003 were generally similar to those measured for each station in the baseline period (1992-2000) with the exception of mercury in both tissues and liver. Mercury levels measured in 2003 in both livers and fillets from OS were among the highest measured over the course of the program but remain well below the MWRA Caution levels. Total PCB and lindane in flounder livers were significantly higher during the post-discharge period (2001 – 2003) than during the pre-discharge period (1998 – 2000). Increases in PCB 180 concentrations, due to analytical interferences (Section 2.6; Lefkovitz *et al*. 2001), may account for the recent increase in total PCB in flounder. However, flounder edible tissue contaminant levels remain well below the federal action limits and the MWRA Threshold Levels and indicate no risk for human consumption.

Lobster

Fifteen lobsters were collected at each of the three core monitoring stations for the 2003 study (DIF, OS, and ECCB). Lobsters were obtained from commercial traps located within the vicinity of the designated sampling stations. The size, sex, and external appearance (*i.e*., black gill disease, shell erosion, external tumors, etc.) were determined for the collected lobsters. Little difference in length and weight were noted among stations. The ratio of males and females, however, differed greatly among the stations, with only males found at ECCB and mostly males collected at DIF and an almost equal number of males and females collected at OS. No deleterious external conditions were noted.

In 2003, the concentrations of most organic contaminants were similar to or lower than historical values, but the variability in concentrations between stations was much less than that observed prior to 1997. Tissue concentrations of inorganics were generally within the historical range. In general, contaminant concentrations were not significantly different at OS during the post-discharge period (2001 – 2003) compared to the pre-discharge period (1998 – 2000), although four chemicals were found to be significantly lower during the post-discharge period (*i.e.*, total DDT, total PCB, total chlordane, and dieldrin). An exception to this was the 2003 total PCB concentration at OS, which was anomalously high and was shown to be isolated to only one lobster in one of the three composites from OS. The anomalous PBC value could be related to the source of the lobster, which could not be verified because the lobster were purchased from a commercial lobsterman on site. Comparisons were made between contaminant levels in lobster edible tissue and MWRA Caution and Warning Thresholds and FDA Action Limits. The 2003 levels, like those detected in previous monitoring years (1992-2002), were well below the federal action limits and the MWRA Threshold Levels and indicate no risk for human consumption.

Mussels

Mussels were collected at Stover's Point, ME and deployed for up to 60 days in arrays at Deer Island (DIL), Boston Inner Harbor (IH), Outfall Site (OSM), "B" Buoy (LNB) and Cape Cod Bay (CCB). A full set of arrays was successfully retrieved at sixty days from all locations. Mussel survival within the deployed arrays upon recovery was high (≥92%).

The 2003 data were similar to previous years with the highest contaminant levels generally observed in mussels deployed in IH and, generally, the lowest concentrations in mussels deployed at CCB. Concentrations of total PAH, NOAA HMW-PAH, total chlordane as well as a number of other organic contaminants and mercury and lead were significantly higher during the post-discharge period (2001 – 2003) than during the pre-discharge period (1998 – 2000). Even with the approximately 2 to 3 fold increase over the very low pre-discharge concentration all levels are below any measure of environmental concern.

As observed in 2002 and 2003, selected contaminants in mussels from OS were elevated relative to the baseline. However, only the levels of total PAH exceeded the MWRA Caution Threshold at OS. This exceedance was consistent with predictions based on a recent theory of bioaccumulation in mussels using

measured concentrations in the effluent, assumed partitioning between dissolved and particulate phases, and the likely water column concentrations the mussels were exposed to at the deployment locations.

1.0 INTRODUCTION

The Massachusetts Water Resources Authority (MWRA) has implemented a long-term Harbor and Outfall Monitoring (HOM) Program for Massachusetts and Cape Cod Bays. The objectives of the HOM Program are to test whether the environmental impacts of the MWRA discharge are consistent with SEIS projections and do not exceed any Contingency Plan thresholds (MWRA 2001a). A detailed description of the monitoring and its rationale is provided in the Effluent Outfall Monitoring Plan developed for the baseline period and the post-discharge monitoring plan (MWRA 1997).

One aspect of the MWRA HOM program is a long-term monitoring program for fish and shellfish (MWRA 1991). The goal of the fish and shellfish monitoring is to provide data to assess environmental impact of effluent discharge into Massachusetts Bay. These data are used to ensure that discharge from the new outfall does not result in adverse impacts to fish and shellfish by comparing values with established thresholds (MWRA 2001a).

The objective of the fish and shellfish monitoring is to define the condition of three indicator species: winter flounder (*Pseudopleuronectes americanus),* lobster (*Homarus americanus),* and blue mussel *(Mytilus edulis*). Measured parameters include length, weight, biological condition, the presence of external or internal disease, and inorganic and organic contaminant tissue concentrations. This characterization of the health of winter flounder, lobster, and mussel in Boston Harbor, Massachusetts Bay, and Cape Cod Bay (hereafter: Boston Harbor and the Bays) forms the basis for assessing changes resulting from the relocation of the outfall discharge (Figure 1-1).

The scope of the 2003 Fish and Shellfish Report is focused primarily on answering the specific monitoring questions developed by the Outfall Monitoring Task Force (OMTF) in the early 1990s and which were included in the original Outfall Monitoring Plan (MWRA 1991). The 2003 data represent the third year of monitoring after the start up of the Massachusetts Bay outfall. The report first provides a summary of the survey and laboratory methods (Section 2). Section 3 presents the results of monitoring data from surveys conducted during 2003, as well as selected data from previous studies. Section 4 discusses the results presented in Section 3 in relation to the fish and shellfish monitoring questions. Finally, conclusions drawn from the 2003 survey results and historical trends are summarized in Section 5.

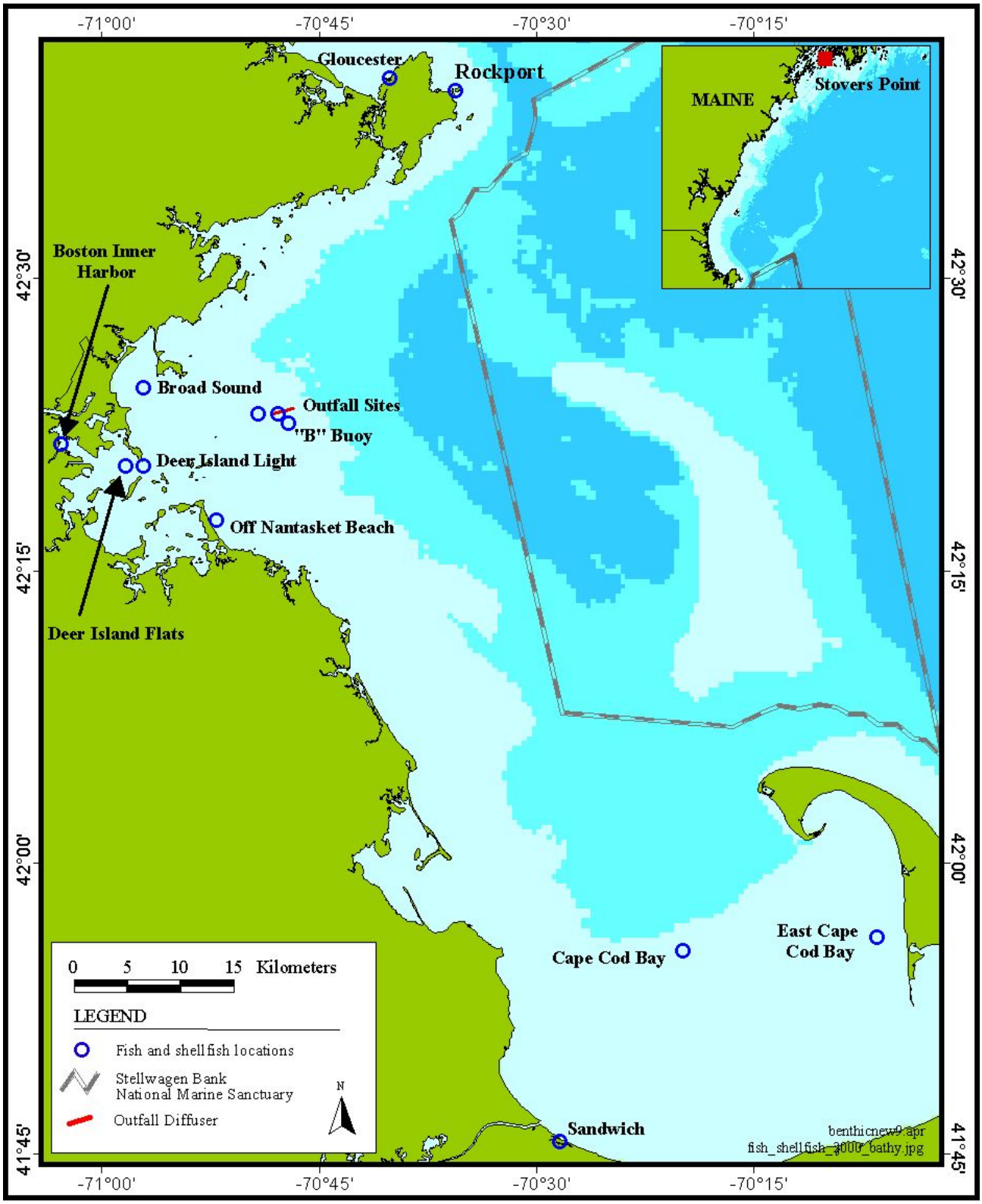


Figure 1-1. Boston Harbor and the Bays with Outfall Site.

2.0 METHODS

The methods and protocols used in the 2003 surveys conducted to collect biological specimens are similar to and consistent with previously used methods. More detailed descriptions of the methods are contained in *Combined work/quality assurance plan (CW/QAPP) for Fish and Shellfish Monitoring 2002-2005* (Lefkovitz *et al*. 2002).

2.1 Winter Flounder Monitoring

Winter flounder *(Pseudopleuronectes americanus)* were collected from five locations in Boston Harbor and the Bays to obtain specimens for age, weight, and length determination, gross examination of health, histology of livers, and chemical analyses of tissues to determine contaminant exposure. Chemical data were used to determine whether contaminant tissue burdens have changed since the startup of the Massachusetts Bay outfall and whether these concentrations approach human health consumption limits.

2.1.1 Stations and Sampling

The 2003 flounder survey was conducted between April 28 and 30, 2003. Five sites were sampled to collect winter flounder for histological and chemical analyses:

- Deer Island Flats (DIF)
- Off Nantasket Beach (NB)
- Broad Sound (BS)
- Outfall Site (OS)
- East Cape Cod Bay (ECCB).

Table 2-1 provides the planned and actual sampling sites and locations for the 2003 flounder sampling. Adjustments in location and time were made to maximize collection efforts in an attempt to collect the required 50 flounder per site. Figure 2-1 shows the actual monitoring locations.

At each of the five designated sampling sites, otter-trawl tows were conducted from the F/V *Odessa* (captained by Captain William Crossen) to collect 50 sexually mature (4-5 years old, total length ≥30 cm) winter flounder. Thirty-five fish at each station were assigned unique identification numbers to indicate date, time, and site of collection. These fish were killed at sea by cervical section and used for histological processing. They were examined externally and their external condition was noted prior to histological processing. The gonads of each flounder were examined to determine sexual maturity. All specimens were weighed, and total and standard lengths were determined. Scales were then taken from each specimen for age determination.

Of the 50 flounder collected from DIF, OS, and ECCB, 15 were designated for tissue chemical analysis. Because contaminant-free conditions were not available on board the vessel, the fish used for chemical analysis were returned to the laboratory for organ dissection. These fish were maintained alive on-board (on ice) and transported to Battelle (Duxbury) for histological and chemical analyses. These fish were also examined for external condition in the laboratory. Fifteen additional unique sample identification numbers were generated at sea at the time of fish collection; however, actual assignment of IDs to individual fish did not occur until the fish were sacrificed at the laboratory.

2.1.2 Age Determination

Scales from each specimen were collected for age determination. Scales were removed after first removing any mucus, debris, and epidermis from the dorsum of the caudal peduncle by wiping in the

direction of the tail with a blunt-edged table knife. Scales were then collected from the cleaned area by applying quick, firm, scraping motions in the direction of the head. The loosened scales were placed in the labeled age-sample envelope by inserting the knife between the liner of the sample envelope and scraping off the scales. The age of each flounder was determined by scientists at the National Marine Fisheries Services (NMFS) in Woods Hole, Massachusetts through analysis of growth rings (annuli).

2.1.3 Dissection of Fish

The flounder tissues were removed in the laboratory under contaminant-free conditions. Tissue processing was conducted in a Class-100 clean room. The fillets (muscle) were removed from the flounder and the skin was removed from the fillet, using a pre-cleaned (*i.e.*, rinsed with 10% HCL, Milli-Q (18 megohm) water, acetone, DCM, and hexane) stainless steel knife.

From each site, three composites were prepared; each composed of approximately equal masses of top and bottom tissue from five randomly chosen fish. Homogenization was performed using a stainless steel TEKMAR® tissuemizer. Each composite was placed in a sample container clearly identified with the unique sample identifier.

Livers from the 15 fish selected for chemical analyses were removed using a titanium knife and processed for chemical analysis, after sectioning for histopathology analysis. (Livers from the fish not used for chemical analyses were removed shipboard and processed for histology as described below). Following the removal of three individual slices of liver for histology analysis, the remaining liver tissue from each fish was homogenized by finely chopping with the titanium knife and three separate composites per station were formed to correspond to the composites made for the fillets (*i.e.*, the livers of the same five specimens used for each edible tissue composite were combined). This was done to ensure comparability between fillet and liver chemical analyses. Each composite was placed in a sample container clearly identified with the unique sample identifier. This resulted in 30 pooled samples for analysis in 2003 (15 pooled fillets and 15 pooled livers). The homogenized tissue and liver samples were frozen and stored. Any remaining tissue from each specimen was archived frozen in case additional analysis was required.

At least one homogenization blank was carried out for each batch of 20 fish to monitor for sample contamination during the homogenization process. For the blank sample, a known quantity (about 100 ml) of Milli-Q water was transferred to a clear glass jar and "tissuemized" for two minutes. The blank was held for analysis of both PCB/Pesticides and Hg (fillet measurements only).

2.1.4 Histological Processing

After the fish were completely examined and scales removed, the livers were removed (either on-board the ship or in the lab, as described above) and examined for visible gross abnormalities ("Gross Liver Lesion"). The livers were then preserved in 10% neutral buffered formalin for histological analysis. Liver samples from each fish were placed in a separate clearly labeled sample container.

2.1.5 Histological Analysis

Livers of 50 flounder from each site were prepared for histological analysis by Experimental Pathology Laboratories in Herndon, VA. Transverse sections of flounder livers fixed as part of tissue sample processing were removed from the buffered formalin after at least 24 hours, rinsed in running tap water, dehydrated through a series of ethanols, cleared in xylene, and embedded in paraffin. Paraffin-embedded material was sectioned on a rotary microtome at a thickness of 5 μm. Each block contained three liver slices, resulting in one slide with three slices per slide per fish, for a total of 250 slides (50 fish X 5 sites). The sections were stained in hematoxylin and eosin.

Each slide was examined under bright-field illumination at 25x, 100x, and 200x magnification to quantify the presence and extent of:

- Three types of vacuolation (centrotubular, tubular, and focal)
- Macrophage aggregation
- Biliary duct proliferation
- Neoplasia

The severity of each lesion was rated on a scale of 0 to 4, where: 0 = absent; 1 = minor; 2 = moderate; 3 = severe; and 4 = extreme. For each lesion and each fish, a histopathological index was then calculated as a mean of scores from three slices on one slide.

2.1.6 Tissue Processing and Chemical Analyses

Chemical analyses were performed on composite samples of flounder from DIF, OS, and ECCB. Two tissue types (fillet, liver) were analyzed. Flounder fillet and livers were analyzed for PCBs/Pesticides, lipids, and mercury. In addition, flounder livers were analyzed for PAHs, lead, silver, cadmium, chromium, copper, nickel, and zinc. The individual steps involved in the tissue processing and chemical analyses of these samples are detailed in Section 2.4 Chemical Analysis of Tissues.

2.1.7 Data Reduction and Statistical Analyses

Data reduction was conducted as described in the Fish and Shellfish Monitoring CW/QAPP (Lefkovitz *et al.* 2002) and in Section 2.5 of this report. Histopathological indices and prevalence of lesions were compared among groups of flounder by differences in station, age, sex and length. Chemical constituents were presented graphically and compared among stations and over time. Temporal patterns of contaminants in flounder fillet and liver tissue were evaluated by comparing pre-discharge and post-discharge concentrations at OS through statistical analyses.

Histopathological observations of the livers of the winter flounder from all sites were conducted and, where possible, comparisons of the results with those of previous years were made.

In addition to reporting the prevalence and lesion index of hydropic vacuolation, historical data has included several other lesions, including macrophage aggregates, biliary proliferation, neoplasia, and a lesion unreported before 1993, referred to as “balloon hepatocytes” (Hillman & Peven 1995).

Where relevant, the levels of contaminants measured in edible tissues were compared to Food and Drug Administration (FDA) Action Levels (EPA 1989) for those contaminants.

2.1.8 Deviations from the CW/QAPP

Differential GPS (dGPS) was available aboard the F/V *Odessa* in 2003 and was used instead of the handheld GPS, as used in previous years.

2.2 Lobster Monitoring

Lobsters *(Homarus americanus)* were collected from three sampling sites for gross examination (to determine specimen health) and chemical analyses (to determine tissue burden of contaminants).

2.2.1 Stations and Sampling

Lobster surveys were conducted on August 19, 2003 (DIF), September 10, 2003 (OS), and October 6, 2003 (ECCB). Lobsters were purchased from commercial lobstermen.

Table 2-2 provides the planned and actual sampling sites and locations for the lobster surveys. Figure 2-2 illustrates the actual sampling locations in Boston Harbor and the Bays. Adjustments in location and time were made to maximize collection efforts and to coincide with the availability of commercial lobstermen and of lobster in the planned collection locations.

In July, August, and September, lobster reports indicated that lobster collection was poor in the area of OS, as well as ECCB. For both these sites, the survey crew was able to purchase lobsters from fishing vessels observed collecting lobsters. During the nearfield survey on September 10, 2003, the fishing vessel *Maralyn Louise* was observed collecting lobsters in the vicinity of station N21. The captain of the *Maralyn Louise* agreed to sell 15 lobsters to Battelle personnel. During the October 6, 2003 farfield survey, the fishing vessel *Dusk Till Dawn* was observed collecting lobsters in the Eastern Cape Cod Bay site, near station F02. The captain of *Dusk Till Dawn* agreed to sell 15 lobsters to Battelle personnel. The exact sampling locations could not be verified for the lobsters that were purchased.

Individual lobsters retained for analyses were assigned a unique identification number to indicate date, time, and site of collection. Lobsters were measured for carapace length and width, and the gender was determined. Lobster specimens were visually examined and the condition noted. Processing of the hepatopancreas and edible tissue samples was conducted in the laboratory.

2.2.2 Size and Sex Determination

Carapace length was determined with calipers by measuring the distance from the posterior of the eye socket to the midpoint of the posterior of the carapace. Measurements were recorded to the nearest millimeter. Specimen weight was recorded to the nearest gram. Specimens were visually examined for the presence and severity of gross external abnormalities, such as black gill disease, shell erosion, and parasites. Data for each specimen were recorded on a lobster sample collection log.

2.2.3 Dissection of Lobster

The hepatopancreas was removed and frozen for chemical analysis. The tail and claw meat (edible tissue) was stored frozen in the shells until processed in the laboratory. Samples were placed in sample containers that were clearly identified with a conventional label containing the pertinent sample information.

The lobsters collected at each site were randomly divided into three groups of five lobsters each. Within each of the three groups, edible meat (tail and claw) and hepatopancreas from the same five lobsters were pooled by tissue type. Homogenization of lobster meat was performed using a stainless steel TEKMAR® tissuemizer. Hepatopancreas samples were homogenized using a titanium knife to avoid metals contamination. Each composite was placed in a sample container clearly identified with the unique sample identifier. This resulted in 18 pooled samples for analysis in 2003 (nine edible meat samples and nine hepatopancreas samples).

2.2.4 Tissue Processing and Chemical Analyses

Chemical analyses were performed on the composite samples of lobster (edible meat and hepatopancreas). Edible lobster meat and hepatopancreas were analyzed for PCBs/Pesticides, lipids, and mercury. In addition, hepatopancreas samples were analyzed for PAHs, lead, silver, cadmium, chromium, copper, nickel, and zinc. The individual steps involved in the tissue processing and chemical analyses of these samples are detailed in Section 2.4 Chemical Analysis of Tissues.

2.2.5 Data Reduction and Statistical Analyses

Data reduction was conducted as described in the Fish and Shellfish Monitoring CW/QAPP (Lefkovitz *et al.* 2002) and Section 2.5 of this report. Chemical constituents were presented graphically and compared among stations and over time. Temporal patterns of contaminants in lobster meat and hepatopancreas tissue were evaluated by comparing pre-discharge and post-discharge concentrations at OS through statistical analyses. Comparisons were made to the FDA Action Limits and other appropriate levels of regulatory concern.

2.2.6 Deviations from the CW/QAPP

Due to the poor availability of lobsters at OS and ECCB in 2003, lobsters were purchased from commercial lobstermen on site. Because actual recovery of the lobster pots was not observed by Battelle personnel, the exact sampling locations of the lobsters could not be verified.

2.3 Mussel Bioaccumulation Monitoring

Blue mussels *(Mytilus edulis)* were collected from Stover's Point, ME and deployed in suspended cages at five sites in Boston Harbor and the bays. Mussels were recovered for determination of short-term accumulation of anthropogenic contaminants in soft tissues.

2.3.1 Stations and Reference Area

Due to the lack of mussels at collection sites used previously in the program, 2003 pre-deployment mussels were collected from a reference site in Stover's Point, ME and were deployed at five sites:

- Deer Island Light (DIL)
- Outfall Site (OSM)
- Outfall Site "B" Buoy (LNB)
- Boston Inner Harbor (IH)
- Cape Cod Bay (CCB)

Table 2-3 provides the planned and actual sampling sites and locations. Figure 2-3 illustrates the sampling locations in Boston Harbor and Massachusetts Bay.

2.3.2 Mussel Collection

On June 23, 2003, approximately 2000 mussels were collected from Stover's Point, ME (SP) for deployment and organic and inorganic chemical analyses. Mussels were harvested during low tide and 400 mussels were individually checked for length. The length of the measured mussels ranged from 51 to 71 mm, with the majority of the mussels between 55 and 65 cm. A sub-sample of 110 mussels was randomly selected and set aside for pre-deployment biological and chemical analyses.

2.3.3 Mussel Deployment

After collection, the mussels were randomly distributed to plastic cages for deployment as an array (i.e., set of cages) in sufficient number to provide the necessary biological material. At least 10% additional mussels were included to account for potential mortality. Mussels were deployed on June 25 and June 26, 2003 in replicate arrays at the five sites (Table 2-3 and Figure 2-4). Table 2-4 lists the minimum numbers of mussels and the number of cages and corresponding arrays that were deployed at each location. Each array was deployed on a separate mooring and each with enough mussels to provide sufficient tissue to complete the study. The locations of the arrays were recorded using Differential Global Positioning System (DGPS).

At OSM, four arrays (OS-M1, OS-M3, OS-M4, OS-M6) were deployed at various locations just south of the diffuser heads and one approximately 1 km away at the "B" buoy (LNB) (Figure 2-4). This deployment scheme was used to better understand the spatial variability of contaminant concentrations along the length of the outfall, in response to the exceedance of the MWRA Caution thresholds for total PAH and total chlordane in 2001 OS mussels (Hunt *et al.* 2002).

2.3.4 Mussel Retrieval

Mussel retrieval was planned for two occasions with collection of up to one half of the mussels at 40-days to provide tissue in the event of failure of the 60-day collection. The 40-day retrieval (IH [A1], DI3, OS-M3, CCB-1) occurred on August 6 and 7, 2003. The 60-day retrieval (IH [A2], DI1, DI2, OS-M1, OS-M4, OS-M6, LNB, and CCB-2) occurred on August 26 and 27, 2003. Actual mussel recovery is discussed in Section 3.3. The amount of biofouling of the arrays was also assessed at 40 days.

2.3.5 Tissue Processing and Chemical Analyses

Individual mussels were pooled into a single composite for organic and inorganic (Hg and Pb) analyses. A total of five pooled samples (containing 20 mussels) per station were created with mussels deployed at DIL and at IH. Four pooled samples (containing 20 mussels) per station were created with mussels deployed at LNB and at CCB. At OSM, eight pooled samples of 20 mussels each were created; four composites were created for the OS-M1 deployment, and two composites for the OS-M4 and OS-M6 deployments. Five pooled replicates of Stover's Point pre-deployment mussels were also analyzed for organic and inorganic parameters. Details of actual mussel retrievals are discussed in Section 3.3.

Mussel composites were prepared from individual mussels by removing attached material and byssal threads. All soft tissue, including fluids, were placed directly into a clean glass jar. Mussel composite samples were prepared for both organic and inorganic chemical analyses by homogenization using a Titanium Tekmar "tissumizer" rinsed with methanol and de-ionized water prior to use. A 20-gram split for metals analyses was taken using a titanium or Teflon utensil and placed in a pre-cleaned 4 ounce plastic jar. All composite splits were stored frozen prior to analysis.

The mussel tissue composites were analyzed for PCBs/Pesticides, PAHs, lipids, mercury, and lead. The individual steps involved in the tissue processing and chemical analyses of these samples are detailed in Section 2.4 Chemical Analysis of Tissue Samples.

2.3.6 Data Reduction and Statistical Analyses

The extent of bioaccumulation of contaminants in the mussels was evaluated using the data reduction methods described in the Fish and Shellfish Monitoring CW/QAPP (Lefkovitz *et al.* 2002) and in Section 2.5 of this report. Chemical concentrations by constituent were presented graphically and compared among stations and over time. Temporal patterns of contaminants in mussel tissue were evaluated by comparing pre-discharge and post-discharge concentrations at OS through statistical analyses. Comparisons were made to the FDA Action Limits and MWRA Caution and Warning thresholds.

2.4 Chemical Analyses of Tissue Samples

Table 2-5 summarizes the analyses performed on each type of tissue sample. Table 2-6 lists the analysis methods, units of measurement and method reference. The chemical analytes of interest are listed in Table 2-7. The same analytical methods were used for all tissues.

2.4.1 Organic Tissue Extraction

Tissues were extracted and cleaned following the procedures of Peven and Uhler (1993), as described in Battelle SOP 5-190. Approximately 30-g of tissue homogenate was weighed into a Teflon extraction jar,

spiked with the appropriate surrogate internal standard (SIS), combined with 75 mL dichloromethane (DCM) and sodium sulfate, macerated with a Tissumizer, and centrifuged. An aliquot of the original sample was also taken for dry weight determination. The extract was decanted into an Erlenmeyer flask. This process was performed twice using 75 mL DCM. After each maceration, the centrifuged solvent extracts were combined in the Erlenmeyer flask. An additional extraction was performed using 50 mL DCM and shaking techniques, the sample centrifuged a third time, and the extract combined with the other two. A 10-mL aliquot of the combined extracts was removed for lipid weight determination. Lipid results were gravimetrically measured by evaporating the aliquot of organic extract and weighing the remaining residue. Results were reported in percent dry weight.

The combined extract was dried over sodium sulfate, processed through an alumina cleanup column, and concentrated to approximately 900-µL for additional HPLC cleanup. Raw extracts (post-alumina) were fractionated by HPLC (BOS SOP 5-191). The post-HPLC extract was concentrated under nitrogen to approximately 0.5 mL and spiked with recovery internal standard (RIS). Dry weight determinations were performed by oven drying a portion of each composite sample.

Extracts requiring both PCB/Pesticide and PAH analyses were split for analysis, one half remaining in DCM for PAH analysis, and the other half solvent-exchanged with isooctane for PCB and pesticide analysis.

2.4.2 Metals Tissue Digestion

To prepare flounder and lobster tissue samples for metals analysis, samples were freeze-dried and homogenized in a ball-mill. A 200- to 300-mg aliquot of each dried, homogeneous sample was digested using aqua regia (nitric and hydrochloric acids at a ratio of 5.0 mL: 3.5 mL) according to Battelle SOP MSL-I-006 *Aqua Regia Sediment and Tissue Digestion*. The freeze-dried tissue and digestion acids were combined in a Teflon bomb and heated in an oven at 130 ºC (±10 ºC) overnight. After heating and cooling, deionized water was added to the acid-digested tissue and the digestates were submitted for analysis.

2.4.3 Organic Analyses

Organic analyses performed on the flounder, lobster, and mussel tissues included PAHs and PCB/Pesticides as summarized in Table 2-5.

PAH Analysis - Trace level organic compounds (PAH) were identified using electron impact gas chromatography/mass spectrometry (GC/MS). Target compounds were separated using an HP 5890 Series II gas chromatograph, equipped with a 60-m x 0.25-mm-inner diameter (0.25-um film thickness) DB-5 column (J&W Scientific), and measured using a HP 5972a mass selective detector operated in the selective ion monitoring (SIM) mode following Battelle SOP 5-157. Concentrations for all target analytes were determined by the method of internal standards, using SISs for quantification. All PAH results were reported in ng/g dry wt.

PCB/Pesticide Analysis - Pesticides and PCB congeners were analyzed and quantified using gas chromatography/electron capture detection (GC/ECD) (Hewlett Packard 5890 Series 2 GC) using a 60-m DBS column and hydrogen as the carrier gas following Battelle SOP 5-128, including a second column for confirmation. Concentrations for all target analytes were determined by the method of internal standards, using SISs for quantification. All PCB and pesticide results were reported in ng/g dry wt.

2.4.4 Metals Analyses

Analysis of Hg - Sample digestates were analyzed for Hg using cold-vapor atomic absorption spectroscopy (CVAA) according to Battelle SOP MSL-I-016 *Total Mercury in Tissues and Sediments by*

Cold Vapor Atomic Absorption, which is based on EPA Method 245.6 *Determination of Mercury in Tissues by Cold Vapor Atomic Absorption Spectrometry* (EPA 1991a). Results were reported in units of µg/g on a dry-weight basis.

Analysis of Ag, Cd, Cr, Cu, Ni, Pb, and Zn - For analysis of multiple metals simultaneously, sample digestates were analyzed using inductively coupled plasma - mass spectrometry (ICP-MS) or by inductively coupled plasma – atomic emission spectrometry (ICP-AES). For analysis of a single element at a time (except Hg), sample digestates were analyzed by graphite furnace atomic absorption (GFAA).

ICP-MS analysis was conducted according to Battelle SOP MSL-I-022 *Determination of Elements in Aqueous and Digestate Samples by ICP/MS*. This procedure is based on two methods modified and adapted for analysis of solid sample digestates, EPA Method 1638 *Determination of Trace Elements in Ambient Waters by Inductively Coupled Plasma - Mass Spectrometry* (EPA 1996) and EPA Method 1640 *Determination of Trace Elements in Water by Preconcentration and Inductively Coupled Plasma - Mass Spectrometry* (EPA 1997). Results were reported in units of µg/g on a dry-weight basis.

ICP-AES analysis was conducted according to Battelle SOP ML-I-027 *Determination of Metals in Aqueous and Digestate Samples by ICP/AES*. This procedure is based on EPA Method 200.7 *Determination of Metals and Trace Elements by Inductively Coupled Plasma-Atomic Emission Spectrometry* (EPA 1994) and SW-846 Method 6010B *Inductively Coupled Plasma-Atomic Emission Spectrometry* (update 12/96). Results are reported in units of µg/g on a dry-weight basis.

GFAA analysis was conducted according to Battelle SOP MSL-I-029 *Determination of Metals in Aqueous and Digestate Samples by GFAA*. This procedure is based on EPA Method 200.9 *Determination of Trace Elements by Stabilized Temperature Graphite Furnace Atomic Absorption Spectrometry* (EPA 1991b). Results were reported in units of µg/g on a dry-weight basis.

2.4.5 Deviations from the CW/QAPP

Total PCBs in one lobster composite of both the meat and hepatopancreas were extremely high. Additional analyses were performed on both the individual lobster meat and hepatopancreas samples making up the composite using the standard sample preparation and GC/ECD analyses described above. Additional confirmation analyses were performed on the extracts from both the meat and hepatopancreas composites generated from the original organic analysis using GC/MS following procedures in Battelle SOP 5-315 Analysis of PCBs by GC/MS. Results are considered in Section 2.6.

2.5 General Data Treatment and Reduction

This section describes the data reduction performed on 2003 Fish and Shellfish data, as well as historical data, as part of the MWRA Harbor and Outfall Monitoring Project.

Specifics of data handling are as follows:

- All 2003 chemical data were generated at Battelle and loaded directly into the HOM database.
- Mussel data for three OSM 60-day deployment locations (OS-M1, OS-M4, OS-M6) were averaged for the time series plot and presented individually for the 2003 stations comparison.
- All fish and shellfish data (2003 and historical) were extracted directly from the HOM database and exported into Excel files, where graphical presentations and statistical analyses were preformed.

- All laboratory duplicates for pre-1998 data were averaged for reporting and calculating. No laboratory duplicate data were entered for post-1998 data.
- Contaminant data were reported as mean, standard error, and *n* by station and year.
- 1992 flounder collection consisted of three individual fish and a composite of seven fish. Results were calculated by treating the composite as seven individual fish and averaging those values with the values of the other three individual fish (i.e., [(7*val1 +val2 + val3 + val4)/10]). MWRA decided that the appropriate standard error and *n* values for this composite are null (Appendix C). This manipulation was done in the script used to query the data from the database and is not reflected in the EM&MS database.
- 1993 lobster selection consisted of two animals collected in June and one in August. Results were calculated by taking the average of these three animals ($n = 3$). The difference in sample collection times was footnoted.
- Total PCB was calculated as the sum of twenty PCB congeners (Table 2-7).
- Total DDT was calculated as the sum of six DDT-related compounds: 2,4'-DDD, 4,4'-DDD, 2,4'-DDE, 4,4'-DDE, 2,4'-DDT, and 4,4'-DDT (Table 2-7).
- Total chlordane was calculated as the sum of four compounds: heptachlor, heptachlorepoxide, cis-chlordane, and trans-nonachlor (Table 2-7).
- For the temporal presentation and analysis of data, the "Historical NOAA List" was used to calculate total PAH (Table 3-10). For the spatial presentation and analysis of data, the "Total PAH List" was used to calculate total PAH.
- In 1995, the individual five alkylated PAHs on the "Historical NOAA List" were not measured in mussels. Instead, the C1-, C2-, and C3-alkylated napthalene homologue groups were quantified. To make 1995 results more comparable to the "Historical NOAA List", values for the individual alkylated naphthalene compounds were estimated using ratios of the individuals to their respective homologue groups from 1996 and 1997 data sets.
- The "f" qualifier was used to indicate compounds that were quantified but were below the detection limit. "f"-flagged data were included in the graphical presentation of results and the calculations of thresholds and baseline means.
- The "G" qualifier was used to indicate compounds that co-eluted with a second known/unknown compound. The values for "G"-flagged data are estimated values and were included in the graphical presentations of results and the calculations of thresholds and baseline means.
- The "s" qualifier was used to indicate suspect data. "s"-flagged data were not included in any calculations or graphs.
- The "q" qualifier was used to indicate possibly suspect/invalid data that may not be fit for use. These data are currently under investigation and were not included in any calculations or graphs.
- The "w" qualifier was used to indicate data that should be used with caution.
- All non-detects used in calculations and trend analyses in this report were treated as zero.
- All data entered into the database are in dry weight units.
- Wet weight tissue concentrations were calculated from the wet/dry ratio and used in comparison to MWRA Appreciable Change levels and FDA action levels.

2.5.1 Statistical Analyses

Statistical analyses were conducted to evaluate whether there were significant differences in the various contaminant concentrations at OS between pre-discharge (1998-2000) and post-discharge (2001-2003) periods. A student's two sample t-test was used to compare the two groups (pre-discharge and post-discharge) for each tissue contaminant found in flounder tissue (fillet and liver), lobster tissue (edible meat and hepatopancreas) and mussel tissue, flounder morphology and pathology, and lobster morphology. Contaminant concentrations of individual sample replicates, not annual means, from OS were used in these analyses.

All t-tests were run in SAS version 8.2 (SAS Institute Inc., 1999). Data were tested for normality prior to running each t-test. In instances where the data were not normally distributed, data were log transformed, and the t-test was run on the transformed data. Statistical results that have a p value of <0.05 are considered to be significantly different between the two time periods.

2.6 Evaluation of the Effect of Congener 180 on Total PCB

During the course of the MWRA Fish and Shellfish program, PCB 180 concentrations have been observed to be high relative to other PCB congeners, especially in samples with high organic contaminant concentrations, such as flounder livers and lobster hepatopancreas samples, and intermittently biasing total PCB concentrations. PCB 180 is generally not one of the primary congeners in most Aroclor mixtures with the exception of Aroclor 1260, where it can make up as much as 30% of the total PCB. For the lighter chlorinated mixtures (Aroclors 1016 – 1254), PCB 180 generally accounts for less than 2% of the total PCB. Previous confirmatory analyses of selected MWRA tissues samples using Gas Chromatography/Mass Spectrometry (GC/MS) (Lefkovitz *et al.* 2001) showed PCB 180 concentrations in lobster hepatopancreas and flounder liver samples to be 2 to 4 times lower compared to concentrations measured by GC/ECD (see Section 2.4.3 for description of method). A common phthalate ester, bis-2 ethylhexyl phthalate, found at high levels in many environmental samples, often coelutes with PCB 180 using the standard GC/ECD method employed in this study (see Section 2.4.3). These elevated values observed using the GC/ECD method were most likely the result of interference caused by coelution with the phthalate bis 2-ethylhexyl phthalate. An illustration of the impact of the PCB180 coelution on the GC/ECD is evident when comparing the total PCB values for these samples, calculated as the sum of the NOAA NS&T congeners, using GC/ECD and GC/MS data. Total PCB in flounder liver using the GC/ECD congener values was elevated approximately 13% over the total PCB value calculated using the GC/MS values.

Figure 2-5, Figure 2-6, and Figure 2-7 show total PCB in lobster hepatopancreas, flounder liver, and mussels plotted with and without PCB 180 included in the sum. While the overall PCB trends do not appear to change dramatically by excluding PCB 180, the total PCB values decrease in almost all cases. Note, however, that in recent years (since 1998) some PCB 180 values that were observed to be anomalously high were flagged as suspect and therefore not included in calculation of total PCB. Table 2-8 presents total PCBs for lobster hepatopancreas, flounder liver, and mussels both with and without PCB 180. The relative percent difference (RPD) between the values is also provided. Where the RPD is "0", PCB 180 was flagged as suspect and was not included in the original total calculation. Comparison of the total PCB values, both with and without PCB 180, shows that the decrease in total PCB is generally small (<15% RPD) in most cases (28 of 37 samples) when PCB 180 was excluded from the sum. In some samples (3 of 37 samples), the decrease in total PCB concentrations was upwards of 42% when PCB 180 was excluded from the sum. These percent decreases appear higher than expected, given that the PCB 180 generally only represents approximately 2% of the total PCB (based on Aroclor 1254 congener distributions). Considering the small but variable contribution of PCB 180 to total PCB concentrations, it is recommended that PCB 180 be excluded from the sum of total PCB after 2003. Note that PCB 180 is included in the sum of total PCB in this 2003 report.

Table 2-1. Planned and Actual Sampling and Locations for Flounder Surveys.

Station ID	Sampling Site	Number of Tows	Planned Locations		Actual Locations[1]	
			N Latitude	W Longitude	N Latitude	W Longitude
DIF	Deer Island Flats	2	42º20.4’	70º58.4’	42º21.1’	70º58.4’
NB	Off Nantasket Beach	2	42º17.6’	70º52.2’	42º17.5’	70º51.5’
BS	Broad Sound	1	42º24.4’	70º57.2’	42º24.6’	70º57.4’
OS	Outfall Site	2	42º23.1’	70º49.3’	42º23.5’	70º49.8’
ECCB	East Cape Cod Bay	2	41º56.2’	70º06.6’	41º57.2’	70º07.3’

[1]Based on an average of the Latitude and Longitude of several tows

Table 2-2. Planned and Actual Sampling and Locations for Lobster Surveys.

Station ID	Sampling Site	Planned Location		Actual Location	
		N Latitude	W Longitude	N Latitude	W Longitude
DIF	Deer Island Flats[a]	42º20.4’	70º58.4’	42º20.432’	70º57.410’
OS	Outfall Site[b]	42º23.1’	70º49.3’	42º23.05’	70º47.09’
ECCB	East Cape Cod Bay[c]	41º56.2’	70º06.6’	41º56.805’	70º18.329’

[a]August 19, 2003
[b]September 10, 2003
[c]October 6, 2003

Table 2-3. Planned and Actual Sampling and Locations for Mussels Surveys.

Station ID	Sampling Site	Planned Location		Actual Location	
		N Latitude	W Longitude	N Latitude	W Longitude
DI1, DI2, DI3	Deer Island Light	42º20.4’	70º57.2’	42º20.4’	71º57.199’
OS-M1	Outfall Site - Mussel Array 1	42º23.15’	70º47.92’	42°23.208’	70°47.262’
OS-M3	Outfall Site - Mussel Array 3	42º23.15’	70º47.92’	42°23.168’	70°47.466’
OS-M4	Outfall Site - Mussel Array 4	42º23.15’	70º47.92’	42°23.107’	70°47.790’
OS-M6	Outfall Site - Mussel Array 6	42º23.15’	70º47.92’	42°23.261’	70°46.986’
LNB	Boston “B” Buoy	42º22.67’	70º47.25’	42º22.671’	70º47.250’
A1, A2	Boston Inner Harbor (Aquarium)	42º21.5’	71º02.9’	42°21.5’	71°02.899’
CCB-1	Cape Cod Bay	41°55.5'	70°20.0'	41°54.703’	70°20.139’
CCB-2	Cape Cod Bay	41°55.5'	70°20.0'	41°54.619’	70°20.176’
SP	Stover’s Point, ME – Pre-deployment	43º45.1’	69º59.9’	43º45.1’	69º59.46’

Table 2-4. Summary of Mussel Deployment Scheme.

Site	Description/ Location	Water Depth[a]	Cage Height Above Bottom	# Arrays	# Cages/Array	# Mussels/ Cage
DIL	Deer Island Light	2-5 m	<1-1.5m	3	2	55
OSM	Outfall Site	33m	12m	4	2	85
LNB	"B" Buoy	33m	12 m	1	2	85
IH	Boston Inner Harbor	8-11m	1.5-4.5m[b]	2	2	55
CCB	Cape Cod Bay	40m	12m	2	2	85

[a] Rise and fall with tide, so that it is at a constant depth below the water surface.
[b] Based on historical data.

Table 2-5. Summary of Chemical Analyses Performed by Organism.

Sample Type	Number of Samples	Metals (1) (other than Hg and Pb)	Hg	Pb	PCBs	PAHs	Pesticides	Lipids
Flounder Meat	15	NR	*	NR	*	NR	*	*
Flounder Liver	15	*	*	*	*	*	*	*
Lobster Meat	9	NR	*	NR	*	NR	*	*
Lobster Hepatopancreas	9	*	*	*	*	*	*	*
Mussel Tissue	31	NR	*	*	*	*	*	*

*Targeted for Analysis; NR = Not Required
(1) Additional metals: Ag, Cd, Cr, Cu, Ni, and Zn

Table 2-6. Fish and Shellfish Sample Analyses.

Parameter	Unit of Measurement	Method	Reference
Organic Analyses			
Organic Extraction	NA	Tissuemize/Methylene Chloride	Peven and Uhler (1993) Battelle SOP 5-190
Polycyclic Aromatic Hydrocarbons (PAH)	ng/g dry wt.	GC/MS	Peven and Uhler (1993) Battelle SOP 5-157
Polychlorinated Biphenyls (PCB)/Pesticides	ng/g dry wt.	GC/ECD	Peven and Uhler (1993) Battelle SOP 5-128
Metals Analyses			
Digestion: Ag, Cd, Cr, Cu, Ni, Pb	NA	Aqua regia Nitric acid	MSL-I-006 MSL-I-005
Analysis: Cr, Ni, Pb	µg/g dry wt	ICP-MS GFAA (as required)	MSL-I-022 MSL-I-029
Analysis: Ag, Cd, Cu, Zn	µg/g dry wt	ICP AES	MSL-I-027
Analysis: Hg	µg/g dry wt	CVAA-FIAS (Hg)	MSL-I-016
Ancillary Parameters			
Lipids	% by dry weight	Gravimetric	Peven and Uhler (1993)
Dry Weight	% by dry weight	Gravimetric	Peven and Uhler (1993)

Table 2-7. Specific Chemical Analytes Included in Tissue Chemistry Analyses.

Chemical Analytes	
Trace Metals[a]	**Polynuclear Aromatic Hydrocarbons (PAHs)** (continued)
Ag Silver	C_1-Phenanthrenes/anthracene
Cd Cadmium	C_2-Phenanthrenes/anthracene
Cr Chromium	C_3-Phenanthrenes/anthracene
Cu Copper	C_4-Phenanthrenes/anthracene
Hg Mercury[b,d]	Dibenzothiophene
Ni Nickel	C_1-dibenzothiophenes
Pb Lead[d]	C_2-dibenzothiophenes
Zn Zinc	C_3-dibenzothiophenes
Polychlorinated biphenyls (PCBs)[c,d]	Fluoranthene
2,4'-Cl_2(8)	Pyrene
2,2N,5-Cl_3(18)	C_1-fluoranthenes/pyrene
2,4,4N-Cl_3(28)	C_2-fluoranthenes/pyrene
2,2N,3,5N-Cl_4(44)	C_3-fluoranthenes/pyrene
2,2N,5,5N-Cl_4(52)	Benzo[*a*]anthracene
2,3N,4,4N-Cl_4(66)	Chrysene
3,3N,4,4N-Cl_4(77)	C_1-chrysene
2,2N4,5,5N-Cl_5(101)	C_2-chrysene
2,3,3N,4,4N-Cl_5(105)	C_3-chrysene
2,3N,4,4N5-Cl_5(118)	C_4-chrysene
3,3N,4,4N,5-Cl_5(126)	Benzo[*b*]fluoranthene
2,2N,3,3',4,4N-Cl_6(128)	Benzo[*k*]fluoranthene
2,2N,3,4,4N,5N-Cl_6(138)	Benzo[*a*]pyrene
2,2N4,4N,5,5N-Cl_6(153)	Dibenzo[*a*,*h*]anthracene
2,2N3,3',4,4N,5-Cl_7(170)	Benzo[g,h,i]perylene
2,2N,3,4,4N,5,5N-Cl_7(180)	Indeno[1,2,3-*c*,*d*]pyrene
2,2N,3,4',5,5N,6-Cl_7(187)	Perylene
2,2N,3,3N,4,4N,5,6-Cl_8(195)	Biphenyl
2,2N,3,3N4,4N,5,5N,6-Cl_9(206)	Benzo[*e*]pyrene
Decachlorobiphenyl-Cl_{10}(209)	Dibenzofuran
Polynuclear Aromatic Hydrocarbons (PAHs)[a,d]	Benzothiazole
Naphthalene	**Pesticides**[c,d]
C_1-naphthalenes	Hexachlorobenzene
C_2-naphthalenes	Lindane
C_3-naphthalenes	Endrin
C_4-naphthalenes	Aldrin
1-methylnaphthalenes[e]	Dieldrin
2-methylnaphthalenes[e]	Mirex
2,6-methylnaphthalenes[e]	Heptachlor
2,3,5-methylnaphthalenes[e]	Heptachlorepoxide
Acenaphthylene	cis-chlordane
Acenaphthene	trans-nonachlor
Fluorene	2,4N-DDD
C_1-fluorenes	4,4N-DDD
C_2-fluorenes	2,4N-DDE
C_3-fluorenes	4,4N-DDE
Phenanthrene	2,4N-DDT
1-methylphenanthrene[e]	4,4N-DDT
Anthracene	DDMU
	Lipids[c,d]

[a] Flounder liver; lobster hepatopancreas
[b] Flounder and lobster edible tissue
[c] Flounder edible tissue and liver; lobster edible tissue and hepatopancreas
[d] Mussel soft tissue
[e] Measured in mussel tissue in 1992–1994 and 1996–2003

Table 2-8. Total PCB in Mussels, Flounder Liver and Lobster Hepatopancreas with and without PCB 180.

Concentration in ng/g dry wt.						
	Total w/ PCB 180		Total w/out PCB 180		RPD (%)	
Mussels						
Year	IH	DIL	IH	DIL	IH	DIL
1991	462	195	451	185	2%	5%
1992	639	124	625	120	2%	3%
1993	480	264	468	256	3%	3%
1994	484	157	476	152	2%	3%
1995	436	165	436	165	0%	0%
1996	533	269	518	258	3%	4%
1997	753	356	688	232	9%	42%
1998	460	161	460	149	0%	8%
1999	492	NA	492	NA	0%	NA
2000	592	215	561	153	5%	34%
2001	398	219	387	212	3%	3%
2002	298	166	289	159	3%	4%
2003	484	196	469	184	3%	6%
Flounder Liver						
Year	DIF	OS	DIF	OS	DIF	OS
1992	2625	1762	2259	1550	15%	13%
1993	1797	1733	1426	1423	23%	20%
1994	3615	2382	3244	2120	11%	12%
1995	9243	6091	6876	4491	29%	30%
1996	3672	2601	3236	2287	13%	13%
1997	4638	2629	4115	2336	12%	12%
1998	3061	1256	2912	1186	5%	6%
1999	2761	1271	2761	1271	0%	0%
2000	1856	1141	1648	1019	12%	11%
2001	3612	2513	2590	1942	33%	26%
2002	3059	2186	2466	1729	21%	23%
2003	4462	2559	4120	2285	8%	11%
Lobster Hepatopancreas						
Year	DIF	OS	DIF	OS	DIF	OS
1992	3254	2046	2623	1831	21%	11%
1993	2846	2255	2588	2068	10%	9%
1994	2482	2452	2233	2053	11%	18%
1995	4525	5234	4175	4747	8%	10%
1996	7225	5583	6365	4893	13%	13%
1997	7109	4935	6356	4302	11%	14%
1998	7723	6004	7060	5500	9%	9%
1999	10255	6354	9115	5656	12%	12%
2000	7578	2965	6201	2703	20%	9%
2001	8019	3696	7275	3351	10%	10%
2002	4465	2897	4133	2629	8%	10%
2003	10136	12782	9269	9599	9%	28%

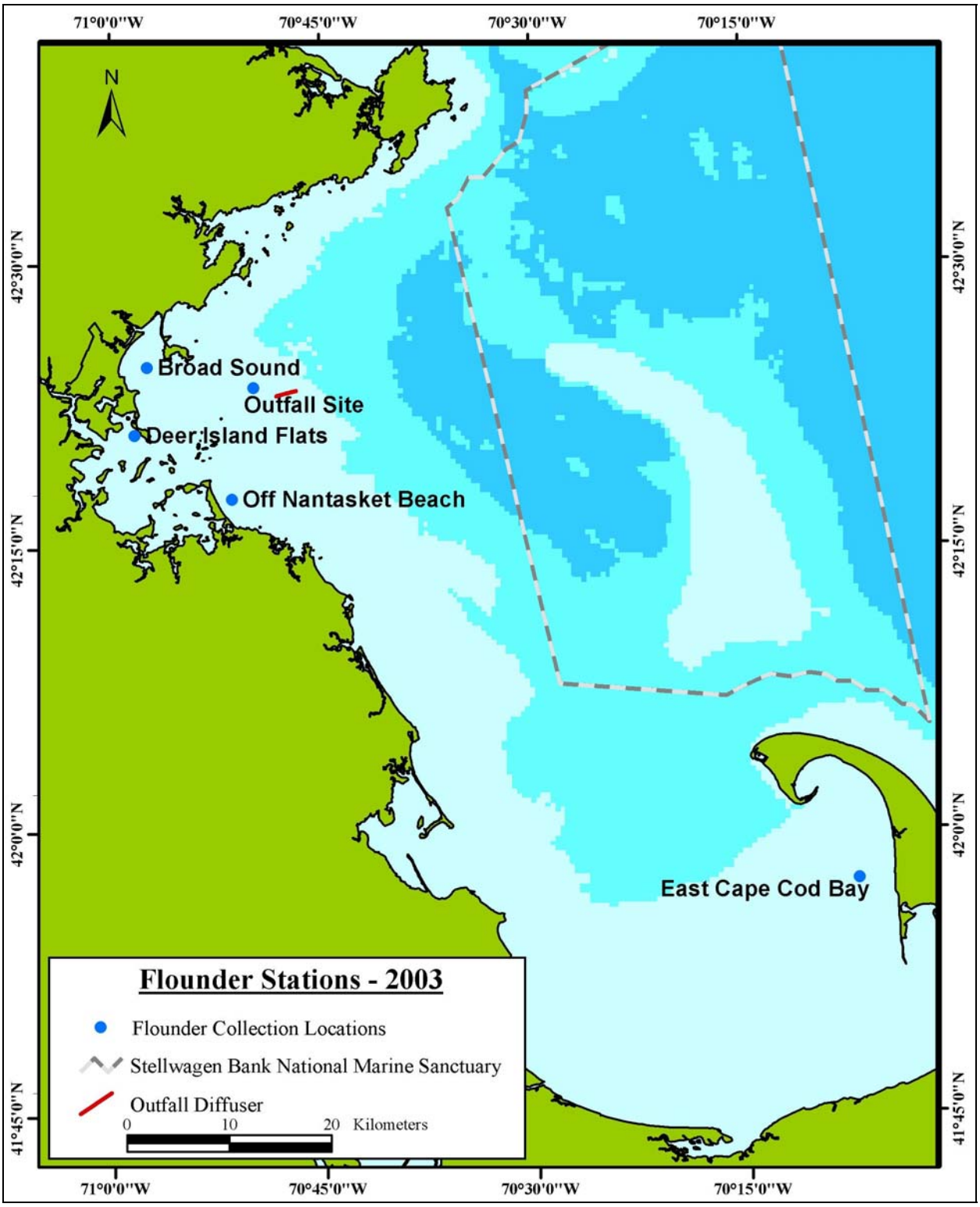


Figure 2-1. Flounder Monitoring Locations.

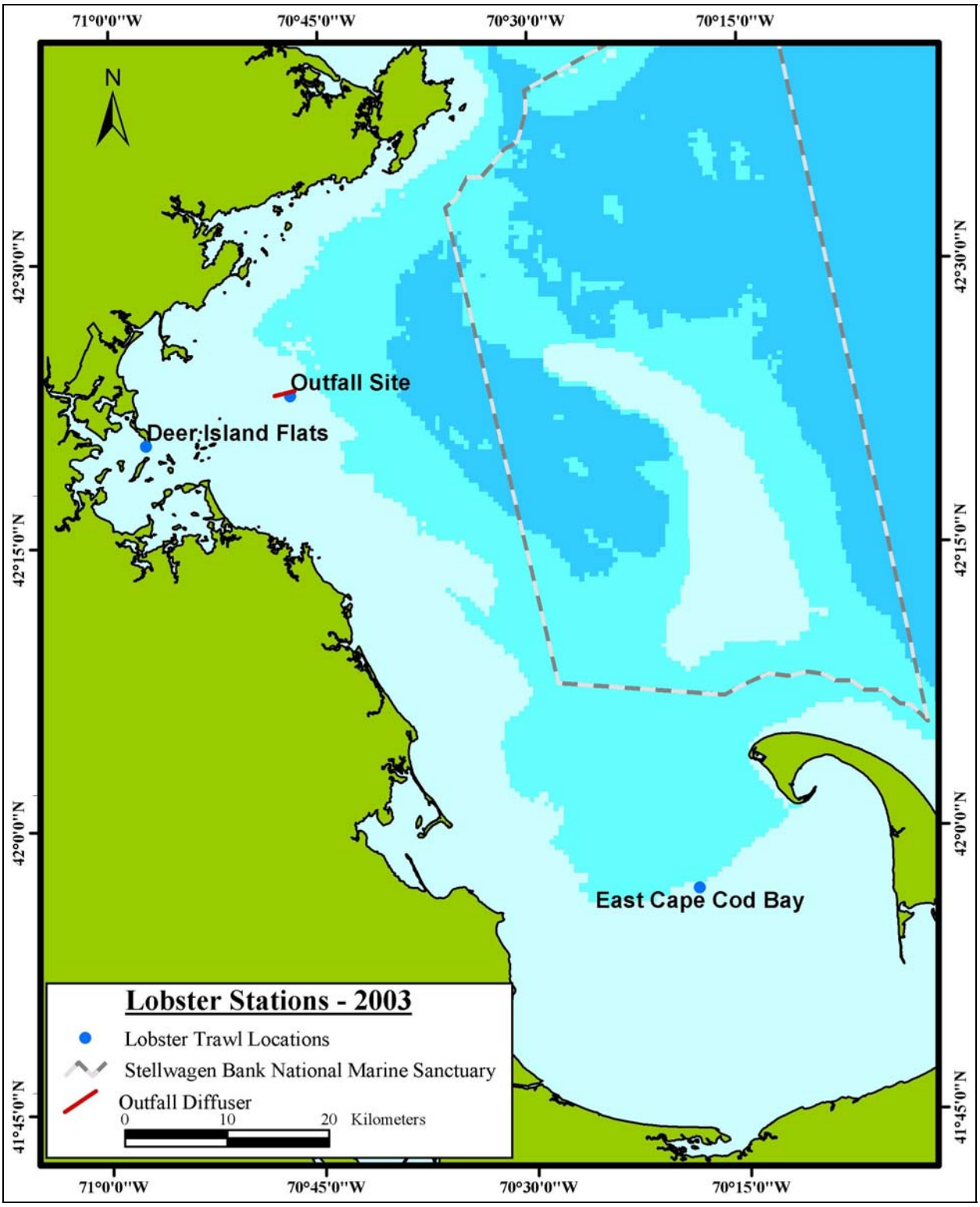


Figure 2-2. Lobster Monitoring Locations.

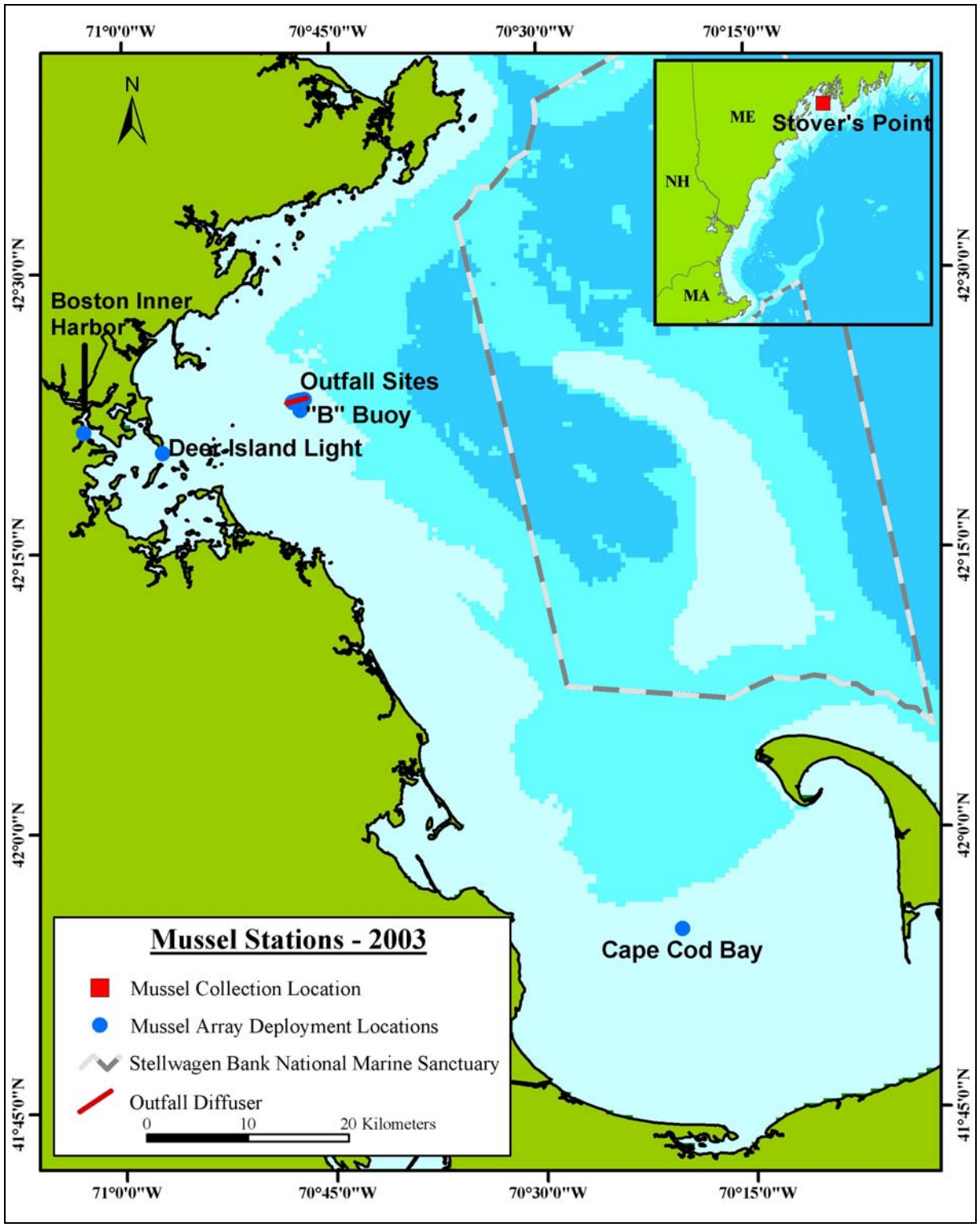


Figure 2-3. 2003 Mussel Collection and Deployment Locations.

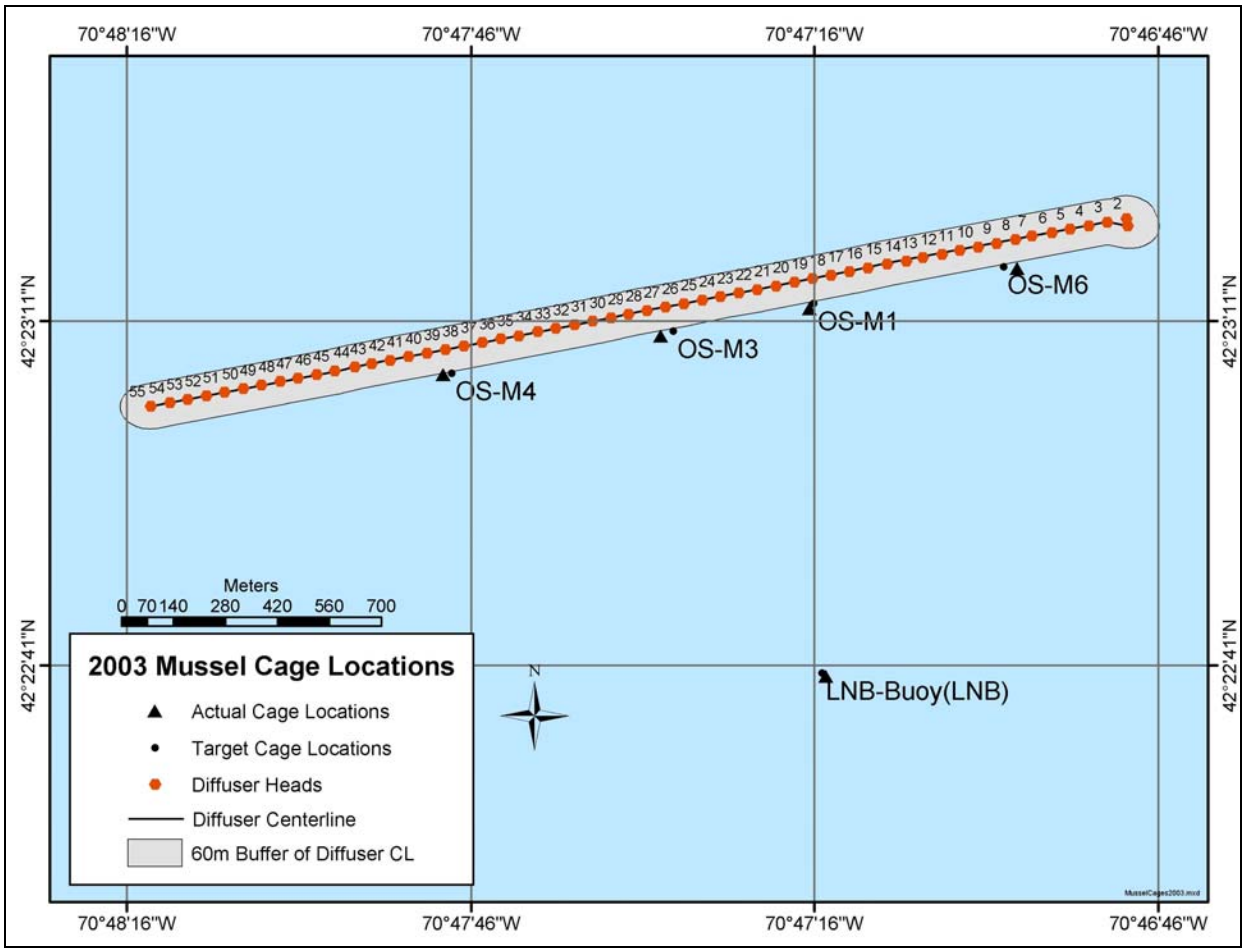


Figure 2-4. Mussel Deployment Locations at OSM in 2003.

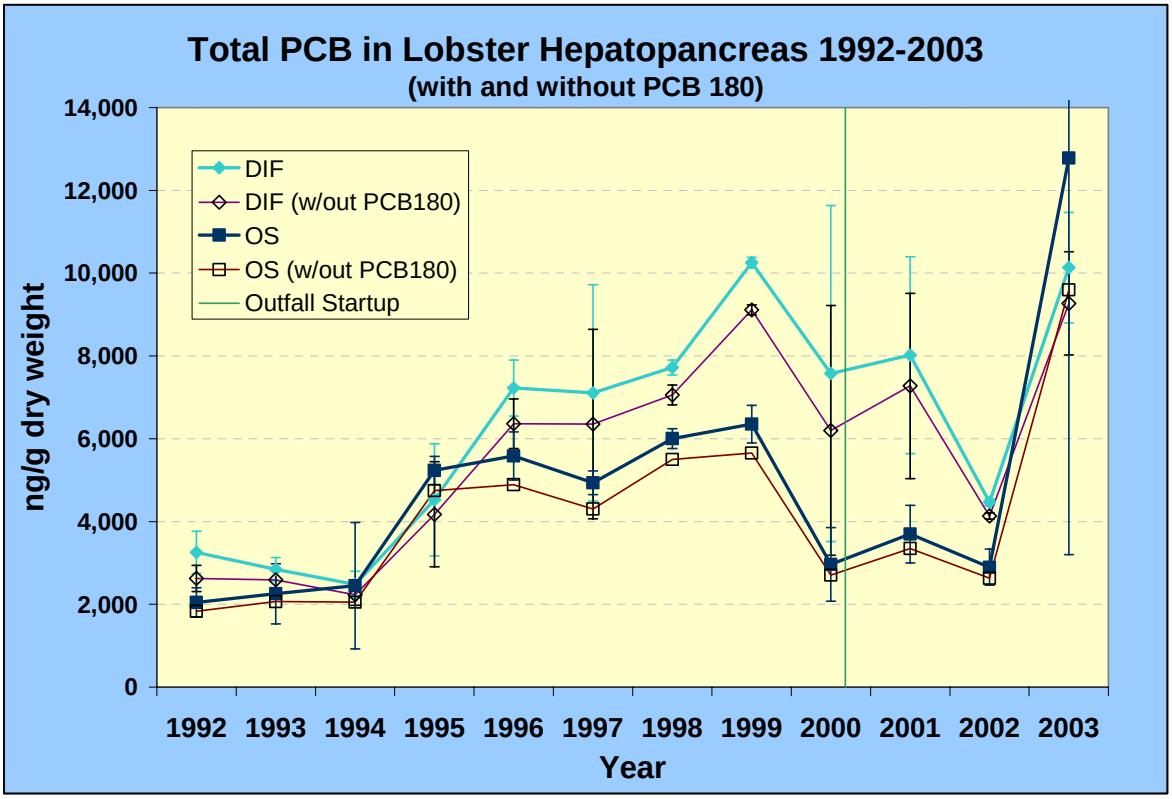


Figure 2-5. Total PCB in Lobster Hepatopancreas (1992 – 2003) with and without PCB 180.

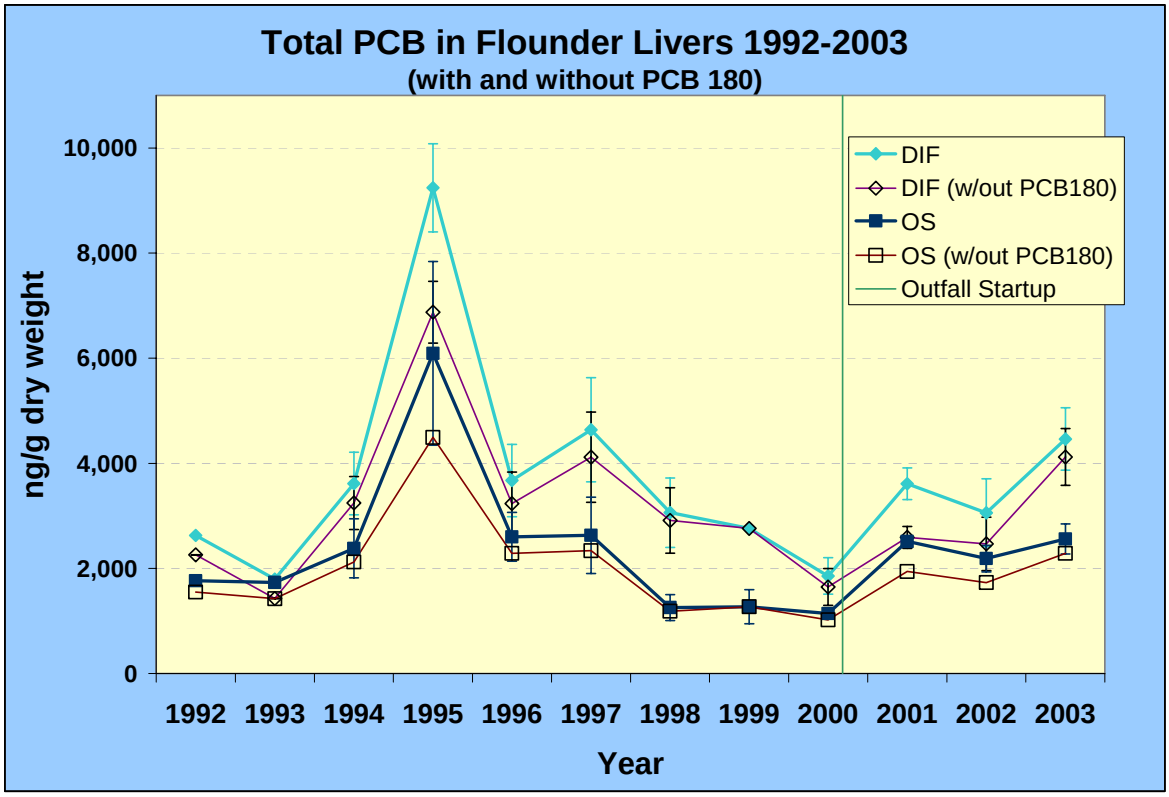


Figure 2-6. Total PCB in Flounder Livers (1992 – 2003) with and without PBC 180.

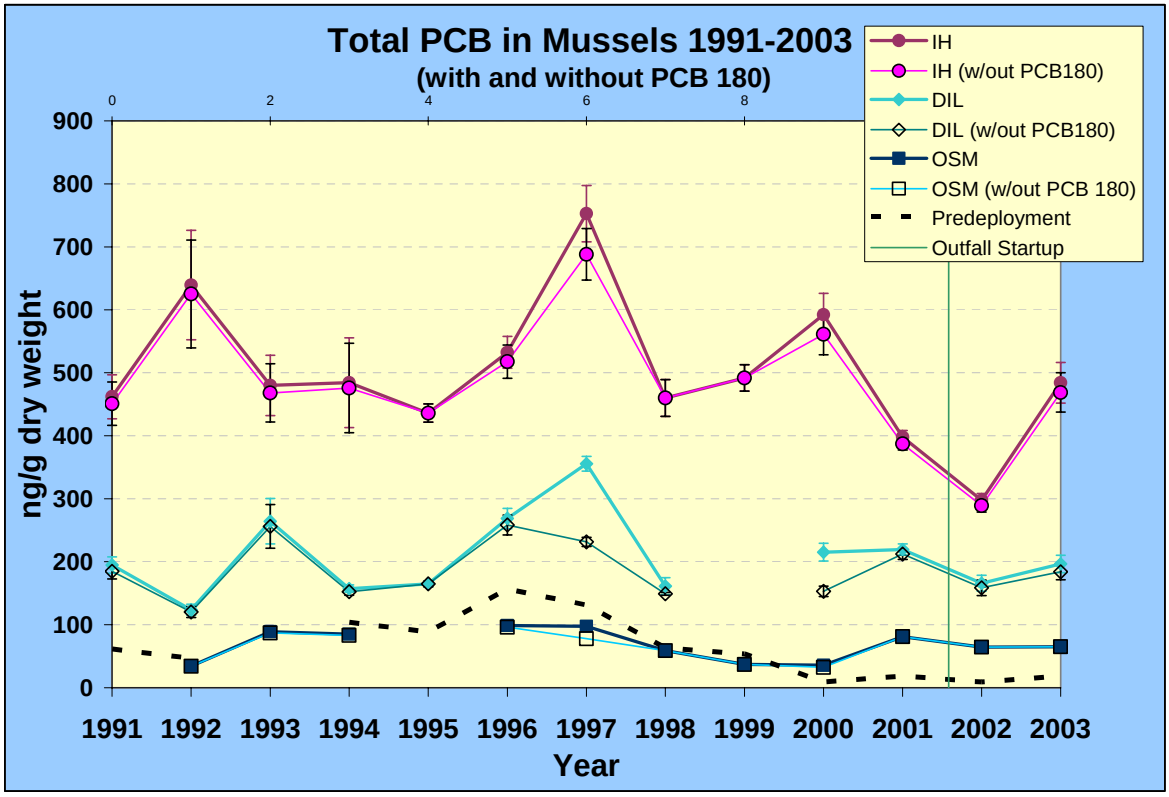


Figure 2-7. Total PCB in Mussels (1991 – 2003) with and without PCB 180.

3.0 RESULTS

3.1 Winter Flounder

3.1.1 Fish Collected

Winter flounder, each a minimum 30 cm in length, were collected between April 28 and 30, 2003 at five stations in the study area (Figure 2-1). The catch per unit effort (CPUE), defined as the number of fish obtained per minute of bottom trawling time, is reported per station in Figure 3-1. In 2003, CPUE values at OS continued to be the highest ever measured at that station and were higher than CPUE measured at the other four stations in 2003. The CPUE at DIF, NB, BS, and ECCB in 2003 returned to levels observed prior to 2002, when an unusual spike in values was observed at those stations.

3.1.2 Age/Length Parameters

The physical characteristics (*i.e.*, mean length, weight, age) of the winter flounder collected in 2003 are given in Table 3-1. Mean total length at each station ranged from 343.4 cm at BS to 376.16 cm at DIF (Table 3-1). Mean weight ranged from 498.1 g at BS to 640.28 g at DIF. Mean age ranged from 4.28 years at BS to 5.28 years at OS.

3.1.3 External Condition

The external conditions (*i.e.*, fin erosion) of winter flounder collected in 2003 are presented as averages per station in Table 3-1. As described in Section 2.1.5, each of the individual winter flounder collected was assessed for external conditions, and rated on a scale of 0 to 4 (no units), with 0 indicating the absence of the condition and 4 indicating extreme abnormalities (or erosion). As shown in Table 3-1, the incidence and severity of fin erosion continues to be low at all stations.

3.1.3.1 Special Study of Surface Ulcers Noted in 2003

During the 2003 survey a marked prevalence of ulcers was observed on the blind surface of a number of flounder. The number of ulcers observed at each station is presented in Table 3-2. Additional information was obtained from a number of other investigators involved in winter flounder collections in the region including Massachusetts Division of Marine Fisheries (MDMF), United States Environmental Protection Agency (USEPA) Narragansett Laboratory, and the National Marine Fisheries Service (NMFS) (Moore, 2003). From data collected as part of this study and the other available data on skin ulceration in winter flounder in the study area, the following conclusions can be drawn: observations by MWRA and other researchers indicate that the lesions observed in 2003 have not been observed in marked numbers in winter flounder prior to 2001. The highest prevalence of lesions appears to be in the Boston Harbor – western Massachusetts Bay region (Figure 3-2).

In light of these results, additional studies will be undertaken in 2004 to expand the normal annual April flounder survey cruise to: a) increase the number of stations for which winter flounder are examined for the presence of a defined suite of external lesions and b) undertake an in-depth microbiological study of the ulcer lesions to attempt to correlate specific organisms with the lesions. Additional trawl surveys at three western Massachusetts Bay stations are to be conducted at approximately three month intervals to monitor the changing prevalence of ulcers through the passage of a year.

3.1.4 Liver Lesion Prevalence

Neoplasms have not been observed in any of the winter flounder collected from the five stations since 1998, when one fish from Broad Sound was found with a hepatic tumor (Figure 3-3). Neoplasms have

always been rare or absent from all sites other than Deer Island and Broad Sound. None have ever been detected at the Outfall Site.

Along with neoplasms, hydropic vacuolation, because of its relationship to environmental contaminants, has been one of the principal lesions monitored in winter flounder throughout the program. Centrotubular hydropic vacuolation (CHV) is the least severe and most common form of the lesions observed in the collections (Table 3-3). In 2003, CHV prevalence at Deer Island rose slightly from the 2002 level, but remained lower than the peak years of 1991 – 1994 (Figure 3-4). Thus the general trend of contaminant associated lesions at this site remains downward. The 2003 prevalence of CHV at Broad Sound remained much lower than the prevalence observed during the peak years of 1991 – 1993. The prevalence at Nantasket Beach dropped in 2000 and remains low (Figure 3-4). CHV for 2003 at the Outfall Site fell marginally from the 2002 level and is below the pre-baseline mean. At the reference site in Eastern Cape Cod Bay CHV prevalence reflected an ongoing low prevalence seen throughout the study.

The severity of CHV at Deer Island was substantially lower than the 1994 and 2001 peaks. Like CHV prevalence, CHV severity is markedly lower at Broad Sound than it was in the early 1990's. CHV severity at the other stations has remained low (Figure 3-5). Assessment of severity is subjective as contrasted with the objective observation of presence or absence of the lesion. The subjectivity of the assessment should be kept in mind when considering the significance of slight changes in the severity index from year to year.

3.1.5 Relationships between Age, Length and Lesion Prevalence

Mean age at each station for each year was calculated and plotted in Figure 3-6. The average age of flounder in 2003 remained generally between four and five years. Exceptions to this were the higher average ages observed at Broad Sound in 1991 – 1993 and a tendency for younger fish to be collected from Cape Cod Bay in some years. Since 2000, there appears to be a general increase in the age of fish collected for this program. This is most notable at the OS site.

Consistent with the age data, standard lengths, which had remained relatively constant through the 1990's appear to have increased over the past few years (Figure 3-7). As for age this is most apparent at the OS site.

The CPUE data (Figure 3-1) indicated a marked increase in flounder availability in 2002. 2003 CPUE data, however, showed a decrease from that high at all stations, except for the Outfall site which retained the elevated levels.

Data for age and HV presence/absence for 1991 through 2003 were also analyzed. The proportion of fish that had HV from each station, for each age class, pooled for all pre-discharge years (1991 to 2000), was then calculated. This was also done for the Outfall Site for the three post discharge years (2001 through 2003). Sample size for the older age classes was low, so the analysis was restricted to fish of 6 years old or less (Figure 3-8).

The following points were noted:

1. For a given station the prevalence of HV disease increased with age (as previously published for a much smaller sample size (Moore *et al.* 1996)).

2. The rate of progression of the disease was proportional to contaminant load, i.e. highest for Deer Island Flats and Broad Sound and very low at the Eastern Cape Cod Bay station.

3. That the prevalence of hydropic vacuolation at the Outfall, after it began operating in September 2000, appears to be showing an increased rate of progression with age of fish. The significance of this finding will only become apparent as data from future years are added to the program. Contaminant effects on winter flounder are long term, chronic, and cumulative. At this time this trend has not translated in to an overall increase in hydropic vacuolation prevalence.

To assess the impact of changes in age, on hydropic vacuolation prevalence, the percentage of fish at each station in each year that showed some degree of hydropic vacuolation was divided by the average age fish for that year at that station. This generated an age corrected index for the presence of hydropic vacuolation (Figure 3-9). The general trend compares well with that of the overall prevalence plot, un-weighted for age.

3.1.6 Tissue Contaminant Levels in 2003

The body burdens of contaminants were determined for both edible tissue (fillets) and liver tissue for winter flounder collected in the 2003 survey. Mean values for selected organic compounds and metals were compared graphically to assess the presence of spatial or temporal trends. All 2003 individual replicate concentrations for each contaminant can be found in Appendix B. Means, standard error, and *n* were determined for all stations and all years, and are presented in Appendix C.

3.1.6.1 Edible Tissue

Comparison of the 2003 mean concentrations of organic compounds in fillets across the study area indicates that higher levels of organic contaminants continue to be found at DIF and the lowest concentrations at ECCB (Figure 3-10, Figure 3-11, and Appendix D). The 2003 concentrations of mercury, the only metal measured in edible tissue, were lowest in the samples from ECCB and highest in samples collected at the Outfall Site (OS), which showed a marked increase from 2002 levels (Figure 3-12). This value is the highest site average mercury level measured during the program. Body burdens of organic compounds and mercury monitored in edible tissue in 2003 were generally similar to the levels measured in previous years, except for the increase in mercury at OS. Concentrations of dieldrin and chlordane in edible tissue collected from DIF remain low, continuing a decreasing trend since the mid-1990's (Appendix D).

3.1.6.2 Liver

Comparison of the 2003 mean concentrations of organic compounds in flounder livers across the study area showed a trend similar to that observed for edible tissue. In general, the highest concentrations of organic contaminants were found in samples from DIF and the lowest in those from ECCB (Figure 3-13, Figure 3-14, and Appendix D). In contrast, metal concentrations in livers were generally much more variable; often highest at OS or ECCB and lowest at DIF (Figure 3-15, Figure 3-16, Figures D-5 thru D-10) but showed no clear temporal trend. Concentrations of organic contaminants (PCBs, chlorinated pesticides, PAHs) in livers from OS winter flounder remain comparable to or lower than levels observed prior to discharge diversion. While concentrations of organic contaminants increased at DIF as compared to some recent years, they remain within the historical range. However, mercury at OS (Figure 3-15), cadmium at ECCB (Figure D-5) and nickel at DIF (Figure D-8) were at the highest levels observed during this program.

3.1.7 Statistical Comparison of Contaminant Levels at OS Pre- and Post-Discharge

Contaminant concentrations in flounder fillet at OS were not significantly different between the pre-discharge and post-discharge periods (Table 3-4). In flounder liver from OS, total PCBs and lindane were the only chemicals with concentrations that were significantly different between pre- and post-discharge periods. Total PCB appears to be increasing slightly at OS since 2000 (Appendix D). The same increase in PCB concentrations was also observed at DIF. However, recent PCB concentrations at both OS and

DIF were well within the range of historical values (Figure 3-13). The cause for the total PCB increase in 2001 – 2003 may be an increase in concentrations of PCB 180 (see Section 2.6). Since PCB 180 coelutes with phthalate, and the two compounds may not always be distinguishable by chromatography (Lefkovitz *et al*. 2001), phthalate interference may have caused the increased values of PCB 180 in recent years.

3.2 Lobster

3.2.1 Size, Sex, and External Conditions

The size, sex, and external conditions (*i.e*., black gill disease, shell erosion, parasites, external tumors, etc.) were determined for the lobsters collected in the 2003 survey. Mean lobster length was similar between the three sampling sites (Table 3-5). Lobster collected from OS weighed approximately 65 g less than those collected from DIF and ECCB. The ratio of female to male lobster showed that only males were collected at ECCB, mostly males were found at DIF, and the sex ratio was nearly equal at OS (Table 3-5). No deleterious external conditions were noted in any of the lobsters collected during the 2003 survey (Table 3-6).

3.2.2 Tissue Contaminant Levels in 2003

Mean concentrations of contaminants in lobster edible meat (tail and claw meat) and liver tissue (hepatopancreas) collected in the 2003 survey were compared graphically to assess the presence of spatial or temporal trends. All 2003 individual replicate concentrations for each contaminant can be found in Appendix B. Means, standard error, and *n* were determined for all stations and all years, and are presented in Appendix C.

3.2.2.1 Edible Tissue

Comparison of the 2003 mean concentrations of organic compounds and mercury in lobster meat across the study area indicates that the highest concentrations are generally found at DIF and the lowest concentrations were still found at ECCB (Figure 3-17, Figure 3-18, Figure 3-19, and Appendix D). Generally, 2003 concentrations were at the lower end of the historical range of values, with total chlordane and dieldrin decreasing at DIF and OS since the late 1990s; although, chlordane and dieldrin levels showed a slight increase at all stations from 2002 levels, the variability in concentrations continued to be low between stations relative to the variability observed prior to 1997 (with the exception of 2003 PCB at OS). A notable exception to the general trends is the 2003 PCB data from OS, which show an anomalously high mean concentration and standard deviation. To better understand this, additional analyses were performed to confirm the high PCB value. Analysis of individual lobster tissue from this site showed the high value was isolated to only one lobster in one of OS's three composites (See Section 3.2.2.3).

3.2.2.2 Hepatopancreas

Comparison of the 2003 mean concentrations of organic compounds in lobster hepatopancreas across the study area showed the same spatial pattern as for edible tissue, with the highest concentrations generally found in samples from DIF and the lowest in samples from ECCB (Figure 3-20, Figure 3-21, and Appendix D). As with the meat, the exception to this is the 2003 PCB measurements, which showed that OS and DIF values increased substantially between 2002 and 2003 (this is further discussed in Section 3.2.3.3). Metal body burdens were generally similar in samples from DIF and OS and lowest from ECCB, except for nickel, where they were highest at ECCB (Figure 3-22, Figure 3-23, Figure 3-24, and Appendix D). At all three stations, the concentrations of total PAH and total chlordane measured in 2003 were similar to or lower than historical values. Total DDT's increased at all three stations in 2003, marginally for OS and ECCB but substantially for DIF (Figure 3-21). Total PCBs also increased at all three stations with both DIF and OS showing dramatic changes over the past several years (Figure 3-20). A few metals, however, were at the upper end of the historical range, including cadmium (at DIF), nickel

(at DIF), and zinc (at OS). Concentrations of lead at ECCB have been elevated since 1998; however, 2003 values at ECCB showed a decrease of almost 50% from 2002. In 2002, silver concentrations at DIF and OS were an order of magnitude higher than in the early 1990s, but 2003 measurements revealed a decrease at all three stations from 2002.

3.2.2.3 2003 PCB Confirmation Analyses – Lobster

PCB analyses using GC/MS was performed on the high meat and high hepatopancreas composites from OS, as well as from one other set of composites from OS and one from Deer Island to confirm the original PCB congener pattern and concentrations. Results of these analyses (Table 3-7) confirmed that the composite in question (OS-C3) was substantially higher than other data from OS and DIF. Comparison of individual and total PCB concentrations measured by GC/ECD and GC/MS in the composite showed that overall GC/ECD concentrations were higher than GC/MS concentrations, as was the case for most individual congeners as well. These results are consistent with GC/MS confirmatory analysis performed for a previous study of lobster and flounder tissue to confirm the presence of PCBs and to elucidate PCB patterns and possible interferences (Lefkovitz *et al.* 2001). Observations from that study noted a number of interferences, primarily from the GC/ECD method, that resulted in elevated concentrations relative to the GC/MS results. For example, some congeners, like PCB 180 (see Section 2.6), have known coeluting interferences using GC/ECD methods (i.e., phthalate) that are unavoidable.

The high result was further investigated by analyzing the archived meat and hepatopancreas tissue from the individual lobsters that made up the high composite (OS-C3). The individual lobsters were analyzed separately by GC/ECD to determine the prevalence of high PCB levels among the five animals (while meat tissue from five animals was available, hepatopancreas tissue was available from only four animals). This analysis indicated that the high levels of PCBs were isolated to one animal (FL0314-14-L) (Table 3-8).

Interestingly, the pattern of PCB congeners in the highly contaminated animal was different from the PCB pattern normally seen in lobster, flounder, and mussels collected from the region. Figure 3-25 shows the distribution of a selected number of representative congeners for the individual animals that made up the high PCB composite (OS-C3) for the meat and hepatopancreas samples, respectively. Also shown are the PCB distributions for lobster meat and hepatopancreas composites from DIF and ECCB, as well as from lobster collected in New Bedford Harbor, a location in the Northeast with significant PCB contamination. The pattern observed in the highly contaminated lobster is dominated by higher chlorinated PCB congeners, more similar to a highly chlorinated Aroclor mixture such as Aroclor 1260. The pattern is also dissimilar to that observed in lobster from New Bedford Harbor, making it unlikely the animal migrated to Massachusetts Bay from this area.

While there is no clear reason for these anomalous PCB results, it could be related to the source of the lobster. The lobsters analyzed for OS in 2003 were purchased from a commercial lobsterman on site. Because the actual recovery of the lobster pots was not observed, it is possible that this one animal was collected not at OS but from a different location.

3.2.3 Statistical Comparison of Contaminant Levels at OS Pre- and Post-Discharge

A number of organochlorine pesticide concentrations in lobster meat and hepatopancreas from OS were significantly lower during the post-discharge period compared to the pre-discharge period and appear to be part of general decreasing trend since 1996 (Table 3-4 and Appendix D). While not statistically significant (due to the wide range of values measured), the increase in PCB in both meat and hepatopancreas was determined to be the result of one animal containing extremely high PCB concentrations. Aside from the one high PCB composite, these analyses indicate that there has not been a significant increase in contaminant concentrations in lobster meat and hepatopancreas within the first

three years of outfall startup and that trends of decreasing concentrations of some contaminants that began in the late 1990s have continued during the post-discharge period.

3.3 Blue Mussel

3.3.1 Mussels Collected

The 40-day mussel retrieval was performed on August 6 and 7, 2003. Samples were successfully collected at DI3, OS-M3, IH1, and CCB-1 stations. The 60-day retrieval was performed on August 26, 2003. Samples were successfully recovered at DI1, DI2, OS-M1, OS-M4, OS-M6, LNB, A2, and CCB-2 stations.

3.3.1.1 Survival

The percent survival observed in the caged mussels was high at all stations for both the 40-day harvested mussels (92 – 99%) and the 60-day collections (94-99%) (Table 3-9).

3.3.2 Tissue Contaminant Levels in 2003

The differences in mussel tissue contaminant levels were examined across the various sampling and deployment locations. Mean values for selected organic compounds and metals were compared graphically and assessed for the presence of spatial or temporal trends. All 2003 individual replicate concentrations for each contaminant can be found in Appendix B. Means, standard error, and *n* were determined for all stations and all years, and are presented in Appendix C.

3.3.2.1 Mercury and Lead

Mercury tissue concentrations in 2003 were highest at IH and lowest at LNB and CCB (Figure 3-26). Mercury concentrations measured in mussels at each site in 2003 were within the historical concentration range. Mercury concentration increases at all four stations were evident from 1999 until 2002, but generally declined in 2003 from recent highs (Figure 3-27). Like for mercury, the highest levels of lead were found in mussels deployed in 2003 at IH and the lowest in mussels from OSM and CCB (Figure 3-28). Lead concentrations appear to be trending lower at DIL in recent years (Figure 3-29).

3.3.2.2 Polychlorinated Biphenyls

Mussel tissues were analyzed for 20 polychlorinated biphenyl (PCB) congeners. The total concentrations of these 20 PCBs were highest at IH and lowest at CCB (Figure 3-30). PCB levels at DIL were intermediate. Data for 2003 PCBs were within the historical range at DIL, OSM, and CCB, with the historically low concentrations measured at IH in 2002 showing an increase in 2003 (Figure 3-31).

3.3.2.3 Pesticides

Most pesticides were detected in the mussels at each location. Only aldrin, endrin, and mirex were not detected in any of the samples from any of the stations. 2003 concentrations of total DDTs, total chlordane, and dieldrin were highest in mussels deployed at IH and lowest in mussels deployed at CCB (Figure 3-32). 2003 concentrations of total DDTs at IH increased from their historically low 2002 levels by approximately 140%, the highest observed DDT levels in the post-baseline monitoring period. Levels of DDT at DIL, OSM, and CCB remained within their historical ranges, albeit at the lower end. Total chlordane levels at IH increased in 2003 from the low levels detected in 2002, although they remained within their historic range. DIL, OSM, and CCB showed only slight changes from the 2002 chlordane values and, although OSM values since 2000 are significantly higher than those in the 1990s, this station has shown a gradual downward trend since the peak in 2001(Figure 3-33, Figure 3-34, and Appendix D).

3.3.2.4 PAH Compounds

Total PAHs, as well as total low and high molecular weight PAHs, have been calculated by different methodologies during the course of this study. For purposes of comparison across multiple study years, the "Historical NOAA List" was used (Table 3-10). The historical NOAA list includes primarily parent PAH compounds and only five individual alkylated naphthalenes. Current data (2003) are discussed in terms of the more recent "Total PAH List" (Table 3-10).

The 2003 average concentrations of total LMW- and HMW-PAH were highest in mussels deployed at IH and lowest at CCB (Figure 3-35). In 2003, total PAH concentrations, as well as HMW-PAH concentrations, were the lowest ever measured at DIL (Figure 3-36). Concentrations of total PAHs at OS were well below total concentrations measured at IH and DIL. However, total PAH concentrations at OS have been elevated above pre-baseline levels since 2000 and have consisted mainly of HMW-PAHs, a change from pre-baseline years where LMW-PAHs generally dominated. 2003 concentrations measured at IH were the highest of all stations, yet within the historic range, and were dominated by HMW-PAHs.

3.3.2.5 Lipid Results

Lipid concentrations were measured in all mussel composites (Appendix B). Values in 2003 were within the same range as lipid values measured in 2002. Average 2003 lipids ranged from the lower values at DIL (7.5± 0.9% dry) and IH (6.6 ± 0.8% dry) to higher but similar values measured at the other locations; SP (9.4 ± 0.7% dry), CCB (10.3 ± 0.5% dry), LNB (10.1 ± 0.5% dry), OS-M1 (8.5 ± 1.3% dry), OS-M4 (9.1 ± 0.6% dry) and OS-M6 (8.9± 0.9% dry).

3.3.3 Statistical Comparison of Contaminant Levels at OS Pre- and Post-Discharge

Pre-discharge and post-discharge concentrations of Hg, Pb, total DDT, total PCBs, total PAH, total chlordane, dieldrin, HCB, lindane, and NOAA HMW PAH were significantly different in mussels deployed at OSM (Table 3-4). Concentrations of Hg and Pb were significantly higher in mussels deployed at OSM during the post-discharge period. Background concentrations of these metals in the predeployment mussels, however, were similar to the levels measured in the OSM mussels (Figure 3-27 and Figure 3-29).

Total PCB concentrations, though significantly higher at OSM in the post-discharge years, were nonetheless among the lowest concentrations measured at any of the deployment locations and were very similar both in concentrations and in the temporal trends observed in the CCB mussels (Figure 3-31). Total DDT, also significantly higher in 2001 – 2003 OSM deployments compared to 1998 – 2000 deployments, were nonetheless lower in 2003 compared to 2002 (Figure 3-33). While the remaining pesticides were found to be statistically higher in the post discharge years, the overall concentration of these contaminants at the OS were very low relative to DIF and BIH, and concentrations were well within the historic range measured throughout the program (Appendix D).

The exception to this is total chlordane concentrations in mussels deployed at OSM. Not only are total chlordane concentrations significantly higher during the post-discharge period, these concentrations were higher than at any other station in 2001 and 2002 (Figure 3-34). While overall concentrations of total chlordane in mussels deployed at IH and DIL have decreased since 1998, concentrations at the both of these locations in 2003 increased substantially relative to the previous two years. This increase might be a result of the increased precipitation in 2003 with the subsequent expected increase in contaminant loadings to Boston Harbor (Figure 3-37).

Total PAHs have significantly increased in mussels deployed at OSM during the post-discharge years (Figure 3-36). This increase appears to be mainly due to a corresponding statistically significant increase in the HMW PAH component (Table 3-4). LMW PAHs show no post-discharge statistical increase.

However, this conclusion is affected by the very elevated concentrations observed in 2000, a year when LMW PAHs at all stations were suspiciously high. Excluding the 2000 data, LMW PAHs in 2001 – 2003 were approximately 60% higher than those measured in 1998 and 1999. Similar increases in total chlordane and total PAHs were also observed at OS in 2001 – 2003. Mean concentrations plotted in mussels in 2002 and 2003 from the OS (Figures 3-33 through 3-35) are based on an average concentration from mussels deployed at three locations along the diffuser (see Figure 2-4 for 2003 locations). Depending on the year and the flow through the diffusers, these concentrations varied by up to a factor of almost two among the locations in a given year (Table 3-11).

Regardless of the variability noted above, the range of concentrations measured at the OS is not unexpected. Results of an investigative study (Hunt *et al.* 2002) to evaluate the elevated levels in mussel tissue at the OS found that the total PAH and chlordane concentrations measured in the mussels deployed in the vicinity of the outfall in 2001 are consistent with predictions based on recent theory of bioaccumulation in mussels using measured concentrations in the effluent, assumed partitioning between dissolved and particulate phases, and the likely water column concentrations the mussels were exposed to at the deployment locations.

3.4 Ecological and Human Health Impacts and Comparison to Thresholds

Two of the Fish and Shellfish monitoring questions deal with ecological and human health impacts of the Massachusetts Bay outfall:

- Has the incidence of disease and/or abnormalities in fish or shellfish changed?
- Do the levels of contaminants in the edible tissue of fish and shellfish around the outfall represent a risk to human health?

Each of these questions is discussed below.

3.4.1 Organism Health (Pathology)

The Fish and Shellfish Monitoring Program measures the incidence of disease and/or abnormalities in fish and shellfish in a variety of ways. The external condition of flounder and lobster are examined annually upon collection. Flounder livers are examined for gross abnormalities and analyzed for a series of histopathological parameters. Flounder pathology data at OS for the three year period after secondary treatment went on line and before outfall discharge began (1998 – 2000) were statistically compared to the two year period immediately following the outfall startup (2001 – 2003). Lobster pathology was also examined for these same periods.

3.4.1.1 Winter Flounder

T-tests comparing key pathological parameters for three years before discharge (i.e., 1998 - 2000) and three years after discharge (i.e., 2001 – 2003) at OS showed differences for a number of morphological and histopathalogical indices (Table 3-12). Length, weight, age, external lesions, macrophage aggregation and biliary duct proliferation all showed statistical increases in post discharge years. Macrophage aggregation showed a higher value for 2001, which then fell to pre-discharge levels in 2002. 2003 levels then returned to the 2001 levels with the exception of ECCB and NB. Macrophage aggregation is impacted by a broad suite of stressors: infectious disease, parasitism, nutrition, age, contaminant exposure and water temperature, thus this parameter may show more of a regional fluctuation, rather than a site specific set of trends.

Fin rot and hydropic vacuolation were the only measurements at OS that showed significant decreases in 2001-2003. Fin rot incidence was significantly lower post-discharge, remaining at the 2000 level, which was lower than the previous two years at OS. Fin ray surface mucous and epithelia are impacted by increased levels of ammonia and other pollutants, making fin rot a rapid and useful parameter for

detecting deteriorating water quality conditions (Bosakowski and Wagner 1994). Fin rot levels have decreased steadily post-discharge at OS, suggesting (as far as this parameter is concerned) that there is little reason for concern. The age-corrected hydropic vacuolation prevalence (Figure 3-9) in the Massachusetts/Cape Cod Bay flounder population suggests that there has been a steady system wide reduction in the contaminant–associated pathology in winter flounder in the past decade.

The significant increases in flounder length, weight, and age at OS suggest that there is no obvious negative impact of wastewater relocation on these parameters. Results show that the prevalence of ulcers in the western portion of Massachusetts Bay has increased markedly, beginning in 2001 (Moore, 2003). However, given the general uncertainty about the specific etiology of skin lesions, it is not possible to determine at this time the cause of the ulceration increases.

3.4.1.2 Lobster

The external condition of lobster is evaluated based on the presence of black gill disease, external tumors, parasites, and shell erosion. The only pathological condition that has ever been observed in lobster collected from OS during the fish and shellfish monitoring program is shell erosion. The other three pathological conditions have been absent every year since 1993. The presence (and severity) of shell erosion was last noted in 1998 (Figure 3-38). Shell erosion, as well as the other pathological conditions measured, has continued to be absent at OS since the startup of the Massachusetts Bay outfall in 2000.

3.4.2 Comparison of Contaminant Levels to Thresholds and FDA Legal Limits

The U.S. Food and Drug Administration (FDA) has set action limits for the maximum tissue concentrations of specific contaminants in the edible portions of fish and fishery products. For the MWRA monitoring program, Caution and Warning thresholds have been set for tissue contaminant concentrations (organic and inorganic) and liver disease incidence (MWRA 2001a, MWRA 2001b). These thresholds are derived from either the FDA Action Limits, when available, or from the baseline mean of contaminant concentrations at OS. These two levels provide reference benchmarks for detecting adverse changes (and their potential human health risks) of the outfall discharge.

3.4.2.1 Winter Flounder

The 2003 mean concentrations of target analytes in flounder edible meat at OS compared to the FDA's Action Limits and the MWRA Caution and Warning Thresholds showed that all fillet chemical concentrations were below both FDA and MWRA Threshold levels and do not pose a human health risk (Table 3-13).

3.4.2.2 Lobster

The 2003 mean concentrations of target analytes in lobster edible meat at OS were compared to the FDA's Action Limits and the MWRA Caution and Warning Threshold levels (Table 3-14). Lobster meat tissues did not exceed any of the FDA Action Limits or MWRA thresholds and do not pose a human health risk.

3.4.2.3 Blue Mussel

The 2003 mean concentrations of target analytes in mussel tissue at OSM were compared to the FDA's Action Limits and the MWRA Caution and Warning Thresholds (Table 3-15). In 2003, concentrations of total PAH in the mussels deployed at OSM exceeded the MWRA Caution thresholds for these compounds. These exceedances were expected based on the results of the investigative study to evaluate the 2001 mussel tissue threshold exceedances for total PAHs (Hunt *et al.* 2002). The mean concentration of total chlordane in mussels was below the FDA Action Limit and the MWRA Caution Level for that compound and does not pose a human health risk. No FDA Action Limit exists for Total PAH.

Table 3-1. Summary of Physical Characteristics of Winter Flounder Collected in 2003.

Station Name		DIF	NB	BS	OS	ECCB
N		50	50	50	50	50
Total Length (mm)	Mean	376.2	355.1	343.4	366.9[a]	347.3
	Std. Dev.	39.3	34.96	29.4	36.6	28.5
Weight (g)	Mean	640.3	536.1	498.1	623.5	507.7
	Std. Dev.	210.6	155.7	157.7	200.0	140.8
Age (years)	Mean	5.1	4.7	4.3	5.3	4.4[b]
	Std. Dev.	0.99	1.1	1.0	1.3	1.1
Fin erosion (0-4)	Mean	0.20	0.36	0.22	0.20	0.36
	Std. Dev.	0.49	0.6	0.51	0.40	0.69

Std. Dev. = Standard Deviation
[a] N=120
[b] N=49

Table 3-2. Prevalence of External Ulcers on the Blind Surface of Winter Flounder Collected in April 2003.

Station	Ulcer Prevalence Percent (sample size)
Outfall Site	24% (70)
Broad Sound	16% (50)
Nantasket Beach	6% (50)
Eastern Cape Cod Bay	0% (50)
Deer Island	20-27% (15)*

*3 or 4 Flounder sampled for chemistry were recalled in hindsight to bear ulcers – (Joanne Lahey pers. Comm.)

Table 3-3. Prevalence (%) of Lesions in Winter Flounder Liver from Five Stations in Massachusetts and Cape Cod Bays – 2003.

Station Name		DIF	NB	BS	OS	ECCB
N		50	50	50	50	50
Lesion type*	Neoplasm	0	0	0	0	0
	Focal HV	2	0	0	0	0
	Tubular HV	24	2	16	16	0
	Centrotubular HV	36	4	20	16	6
	Macrophage Aggregation	80	52	70	76	52
	Biliary Proliferation	64	64	62	58	54

*Prevalence calculated as the percentage of fish from each station showing each lesion type
HV – Hydropic Vacuolation

Table 3-4 . Student's Two Sample T-test Results Comparing Contaminant Concentrations at the Outfall Site Before (1998 – 2000) and After (2001 – 2003) Outfall Startup.

Parameter	Probability*				
	Flounder Fillet	**Flounder Liver**	**Lobster Meat**	**Lobster Hepatopancreas**	**Mussels**
Cd	NA	0.4825	NA	0.9662	NA
Cr	NA	0.1029	NA	0.1321	NA
Cu	NA	0.2507	NA	0.3906	NA
Pb	NA	0.7435	NA	0.2623	**<0.0001 (+)**
Hg	0.4360	0.6665	0.2829	0.0624	**<0.0001 (+)**
Ni	NA	0.1196	NA	0.7945	NA
Ag	NA	0.9438	NA	0.6936	NA
Zn	NA	0.5017	NA	0.3077	NA
Total DDT	0.3539	0.2814	0.2756	**0.0243 (-)**	**0.0311 (+)**
Total PCB	0.1515	**<0.0001 (+)**	0.4116	0.6883	**<0.0001 (+)**
Total PAH	NA	0.1540	NA	0.1742	**<0.0001 (+)**
Total Chlordane	0.0981	0.2397	**0.0060 (-)**	**0.0304 (-)**	**<0.0001 (+)**
Dieldrin	0.1479	0.4025	0.0921	**0.0007 (-)**	**0.0015 (+)**
HCB	0.7245	0.3665	**0.0065 (-)**	0.1011	**0.0018 (+)**
Aldrin	ND	ND	ND	ND	ND
Mirex	0.0688	0.6562	**0.0220 (-)**	0.1276	0.0585
Endrin	0.1690	0.0828	ND	NA	0.3277
Lindane	0.4053	**0.0088 (+)**	0.1807	0.5620	**0.0002(+)**
NOAA LMW PAH	NA	NA	NA	NA	0.0634
NOAA HMW PAH	NA	NA	NA	NA	**<0.0001 (+)**
Lipids	NA	NA	NA	0.4724	NA
Percent Weight of the Sample which is Dry	NA	NA	NA	0.8201	NA

NA = Not Analyzed

ND = Not Detected

*A probability value of <0.05 indicates statistical significance.

(+) indicates a statistically significant **increase** from pre-discharge to post-discharge

(-) indicates a statistically significant **decrease** from pre-discharge to post-discharge

Table 3-5. Mean Length, Weight, and Sex Ratio of Lobsters Collected in 2003.

Parameter	DIF			OS			ECCB		
	Mean	S.D.	N	Mean	S.D.	N	Mean	S.D.	N
Carapace Length (mm)	88.26	2.88	15	85.61	2.68	15	88.17	4.57	15
Weight (g)	538.01	66.124	15	465.93	40.227	15	526.96	89.5685	15
RATIO Male/Female*	12/3	NA	15	7/8	NA	15	15/0	NA	15

S.D. = Standard Deviation

* This value is a ratio, not a mean

Table 3-6. Mean Score – 2003 Lobster External Condition.

Parameter		DIF	OS	ECCB
N		15	15	15
Black Gill	Mean	0	0	0
	Std. Dev.	0	0	0
External Tumors	Mean	0	0	0
	Std. Dev.	0	0	0
Parasites	Mean	0	0	0
	Std. Dev.	0	0	0
Shell Erosion	Mean	0	0	0
	Std. Dev.	0	0	0

Note: Values range from 0 (absent) to 4 (extreme).
Std. Dev. = Standard Deviation

Table 3-7. Comparison of Outfall Site Lobster Hepatopancreas PCB Congeners by GC/MS and GC/ECD Analysis (ng/g dry weight).

Sample ID	OS-C3				OS-C1				DIF-C3			
Analysis Type	***GC/ECD***	**Q**	***GC/MS***	**Q**	***GC/ECD***	**Q**	***GC/MS***	**Q**	***GC/ECD***	**Q**	***GC/MS***	**Q**
Congener												
Cl2(8)		a		aL	4.1			aL	5.19			aL
Cl3(18)	1.9			aL	4.9			aL	7.07			aL
Cl3(28)	7.9		42.1	L	19.0		29.0	L	62.78		91.83	L
Cl4(44)	2.4			aL	2.7			aL	5.09			aL
Cl4(52)	46.4		10.0	L	7.0			aL	27.9		34.87	L
Cl4(66)	25.8		132.2	L	69.2		106.7	L	282.77	L	326.46	L
Cl4(77)		a		aL		a	9.3	L		a	27.84	L
Cl5(101)	324.9	L	118.8	L	46.0		37.5	L	157.34		130.03	L
Cl5(105)	161.2		171.3	L	138.6		129.2	L	676.39	L	452.84	L
Cl5(118)	578.4	L	488.5	L	463.1	L	366.2	L	1789.53	L	1127.86	L
Cl5(126)		a		aL		a		aL				aL
Cl6(128)	130.6		185.9	L	100.2		93.0	L	449.38	L	283.66	L
Cl6(138)	3025.0	L	1603.0	L	678.8	L	843.2	L	2831.67	L	2710.42	L
Cl6(153)	4256.0	L	923.2	L	965.1	L	302.5	L	3717.3	L	1060.65	L
Cl7(170)	1124.2	L	1632.9	L	102.3		102.8	L	397	L	257.50	L
Cl7(180)	8705.0	L	3743.3	L	470.8	L	302.3	L	1028.83	L	629.65	L
Cl7(187)	6670.8	L	2976.4	L	340.1	L	276.3	L	925.18	L	612.44	L
Cl8(195)	1849.2	L	1311.5	L	30.1		26.1	L	34.83		31.90	L
Cl9(206)	4759.5	L	2205.1	L	39.2		35.4	L	34.48		44.02	L
Cl10(209)	273.5	L	241.0	L	11.1		9.5	L	10.39		16.58	L
Total PCB	31943		15785		3492		2669		12443		7839	

Q = qualifier
a = analyte not detected
L = value taken from dilution

Table 3-8. Individual OS-C3 Lobster Analyses of Meat and Hepatopancreas (ng/g dry weight).

Sample ID	FL0314-11-T		FL0314-12-T		FL0314-13-T		FL0314-14-T		FL0314-15-T		FL0314-12-L		FL0314-13-L		FL0314-14-L		FL0314-15-L	
Matrix	**M**		**M**		**M**		**M**		**M**		**H**		**H**		**H**		**H**	
Congener																		
Cl2(8)		a		a		a		a		a		a		a		a		a
Cl3(18)		a		a		a		a		a		a		a		a		a
Cl3(28)		a		a		a		a	2.08		31.39			a		a	32.45	
Cl4(44)		a		a		a		a		a		a		a		a		a
Cl4(52)		a		a		a	38.29		1.62		6.32		2.96			ax	10.14	
Cl4(66)	1.11	x	2.64		2.2		3.95		3.45		130.5		80.52		161.09		114.59	
Cl4(77)		a		a		a		a		a		a		a		ax		a
Cl5(101)	0.94		1.14			a		a		a	57.31		23.84			a	43.66	
Cl5(105)	1.56		3.55		1.91		5.15		4.63		196.26		123.23		229.83		155.83	
Cl5(118)	4.65		10.89		6.35		19.37		14.83		550.51	L	341.65	L	763.13	L	427.98	L
Cl5(126)		a		a		a		a		a		a		a	11.35			a
Cl6(128)	1.01		2.21		1.11		5.49		3.16		133.56		79.88		251.07		107.83	
Cl6(138)	5.54		11.63		5.59		51.73		18.83		771.42	L	393.28	L	4700.51	L	612.32	L
Cl6(153)	6.56		14.16		7.7		157.61	L	26.75		981.57	L	588.45	L	9714.67	L	845.18	L
Cl7(170)	0.81		1.51	x	0.89		68.77		5.5		124.69		74.42		4555.34	L	114.19	
Cl7(180)	1.49	x	3.66	x	3.58		424.86	L	21.28		464.36	L	265.57	L	26675.7	L	401.94	L
Cl7(187)	2.13		4.41		2.91		323.03	L	17.9		314.44		230.88		19418.91	L	339.03	
Cl8(195)	0.18	f	0.46		0.26	f	154.07	L	5.34		27.6		20.18		7806.02	L	56.9	
Cl9(206)	0.21	f	0.46		0.3	f	301.89	L	10.69		33.83		29.2		16286.29	L	114.28	
Cl10(209)	0.12	xf	0.32	f	0.21	f	21.05		1.09		16.09		14.94		1052.16	L	13.34	

M -= meat
H = hepatopancreas
a = not detected – value reported as negative or null
f = value reported is below method detection limit
x = matrix interference
L = analytical concentration reported from dilution

Table 3-9. 2003 Caged Mussels Survival Data.

Collection	Site	Total Mussels	Dead Mussels	Survival Rate
40-day	IH1	120	2	98%
	DI3	129	4	97%
	OS-M3	175	2	99%
	CCB-1	172	13	92%
60-day	IH2	120	6	95%
	DI*	244	4	98%
	OSM†	682	9	99%
	CCB-2	169	10	94%

* Represents mussels from the DI1 and DI2 deployments combined
† Represents mussels from the OS-M1, OS-M4, OS-M6, and LNB deployments combined.

Table 3-10. Summary of PAH Lists of Analytes Used for Bioaccumulation Study 1992 - 2003.

Total PAH List	"Historical" NOAA PAH List
Low Molecular Weight PAHs	**Low Molecular Weight PAHs**
1-METHYLNAPHTHALENE*	1-METHYLNAPHTHALENE
1-METHYLPHENANTHRENE*	1-METHYLPHENANTHRENE
2,3,5-TRIMETHYLNAPHTHALENE*	2,3,5-TRIMETHYLNAPHTHALENE
2,6-DIMETHYLNAPHTHALENE*	2,6-DIMETHYLNAPHTHALENE
2-METHYLNAPHTHALENE*	2-METHYLNAPHTHALENE
ACENAPHTHENE	ACENAPHTHENE
ACENAPHTHYLENE	ACENAPHTHYLENE
ANTHRACENE	ANTHRACENE
BENZOTHIAZOLE*	
BIPHENYL	BIPHENYL
C1-DIBENZOTHIOPHENES	
C1-FLUORENES	
C1-NAPHTHALENES	
C1-PHENANTHRENES/ANTHRACENES	
C2-DIBENZOTHIOPHENES	
C2-FLUORENES	
C2-NAPHTHALENES	
C2-PHENANTHRENES/ANTHRACENES	
C3-DIBENZOTHIOPHENES	
C3-FLUORENES	
C3-NAPHTHALENES	
C3-PHENANTHRENES/ANTHRACENES	
C4-NAPHTHALENES	
C4-PHENANTHRENES/ANTHRACENES	
DIBENZOFURAN	
DIBENZOTHIOPHENE	
FLUORENE	FLUORENE
NAPHTHALENE	NAPHTHALENE
PHENANTHRENE	PHENANTHRENE
High Molecular Weight PAHs	**High Molecular Weight PAHs**
BENZ(A)ANTHRACENE	BENZ(A)ANTHRACENE
BENZO(A)PYRENE	BENZO(A)PYRENE
BENZO(B)FLUORANTHENE	BENZO(B)FLUORANTHENE
BENZO(E)PYRENE	BENZO(E)PYRENE
BENZO(G,H,I)PERYLENE	BENZO(G,H,I)PERYLENE
BENZO(K)FLUORANTHENE	BENZO(K)FLUORANTHENE
C1-CHRYSENES	
C1-FLUORANTHRENES/PYRENES	
C2-CHRYSENES	
C2-FLUORANTHENES/PYRENES	
C3-CHRYSENES	
C3-FLUORANTHENES/PYRENES	
C4-CHRYSENES	
CHRYSENE	CHRYSENE
DIBENZO(A,H)ANTHRACENE	DIBENZO(A,H)ANTHRACENE
FLUORANTHENE	FLUORANTHENE
INDENO(1,2,3-C,D)PYRENE	INDENO(1,2,3-C,D)PYRENE
PERYLENE	PERYLENE
PYRENE	PYRENE

*** Not Included in Total PAH**

Table 3-11 Summary of Total Chlordane and Total NOAA PAHs in Mussels at the Individual Outfall Site Sampling Locations in 2002 and 2003 (ng/g, dry weight)

		OS-M1 (n=4)	s.d	OS-M2 (n=2)	s.d	OS-M4 (n=2)	s.d	OS-M5 (n=2)	s.d	OS-M6 (n=2)	s.d.
Total Chlordane	2002	19.6	1.5	13.8	0.6	na	na	14.3	1.7	na	na
	2003	17.4	2.0	na	na	15.2	1.7	na	na	16.4	0.2
Total NOAA PAH	2002	298.7	22.4	173.8	10.5	na	na	236.8	25.0	na	na
	2003	349.6	41	na	na	300.3	28.7	na	na	284.1	4.6

Table 3-12. Student's Two Sample T-test Results Comparing Flounder and Lobster Morphology and Pathology at the Outfall Site Before (1998 – 2000) and After (2001 – 2003) Outfall Startup.

Parameter	Probability*	
	Flounder	Lobster
Length	**0.0004 (+)**	**0.0244 (-)**
Weight	**0.0022 (+)**	**0.0035 (-)**
Age	**<0.0001 (+)**	NA
External Lesions	**0.0020 (+)**	NA
Fin Rot	**<0.0001 (-)**	NA
Gross Liver Lesions	0.0727	NA
Centrotubular Hydropic Vacuolation	**0.0061 (-)**	NA
Tubular Hydropic Vacuolation	0.2628	NA
Focal Hydropic Vacuolation	0.8978	NA
Macrophage Aggregation	**0.0436 (+)**	NA
Biliary Duct Proliferation	**0.0183 (+)**	NA
Neoplasia	ND	NA

NA = Not Analyzed

ND = Not Detected

*A probability value of <0.05 indicates statistical significance.
(+) indicates a statistically significant **increase** from pre-discharge to post-discharge
(-) indicates a statistically significant **decrease** from pre-discharge to post-discharge

Table 3-13. Comparison of MWRA Caution and Warning Levels to Mean 2003 Flounder Fillet Concentrations for Selected Parameters.

Station	Liver Disease Incidence (%)			Total PCB (ng/g wet wt.)			Total DDT (ng/g lipid)			Total Chlordane (ng/g lipid)			Dieldrin (ng/g lipid)			Mercury (µg/g wet wt.)		
	mean	se	n	mean	se	n	mean	se	n	mean	se	n	mean	se	n	mean	se	n
Outfall Site (OS)	16	0	50	30	3	3	583	237	3	143	54	3	29.2	7	3	0.105	0	3
MWRA Caution Level	44.94			1000			1552			484			127			0.5		
MWRA Warning Level	NA			1600			NA			NA			NA			0.8		
FDA Limit	NA			2000			5000			300			300			1		

Table 3-14. Comparison of MWRA Caution and Warning Levels to Mean 2003 Lobster Meat Concentrations for Selected Parameters.

Station	Total PCB (ng/g wet wt.)			Total DDT (ng/g lipid)			Total Chlordane (ng/g lipid)			Dieldrin (ng/g lipid)			Mercury (µg/g wet wt.)		
	mean	se	n	mean	se	n	mean	se	n	mean	se	n	mean	se	n
Outfall Site (OS)	29.5	14.6	3	129	14	3	77.9	10	3	27.8	5.9	3	0.112	0.04	3
MWRA Caution Level	1000			683			150			322			0.5		
MWRA Warning Level	1600			NA			NA			NA			0.8		
FDA Limit	2000			5000			300			300			1		

Table 3-15. Comparison of MWRA Caution and Warning Levels to Mean 2003 Mussel Concentrations for Selected Parameters.

Station	Total PCB (ng/g wet wt.)			Total DDT (ng/g lipid)			Total Chlordane (ng/g lipid)			Dieldrin (ng/g lipid)			Total PAH[1] (ng/g lipid)			Mercury (µg/g wet wt.)			Lead (µg/g wet wt.)		
	mean	se	n	mean	se	n	mean	se	n	mean	se	n	mean	se	n	mean	se	n	mean	se	n
Outfall Site (OSM)	8.52	0.54	7.6	179	13	8	191	13	8	21.6	2.1	8	3,690	190	8	0.0173	0.002	8	0.226	0	8
MWRA Caution Level	1000			483			205			50			2160			0.5			2		
MWRA Warning Level	1600			NA			NA			NA			NA			0.8			3		
FDA Limit	2000			5000			300			300			NA			1.000			3.75		

[1]Based on NOAA PAHs only

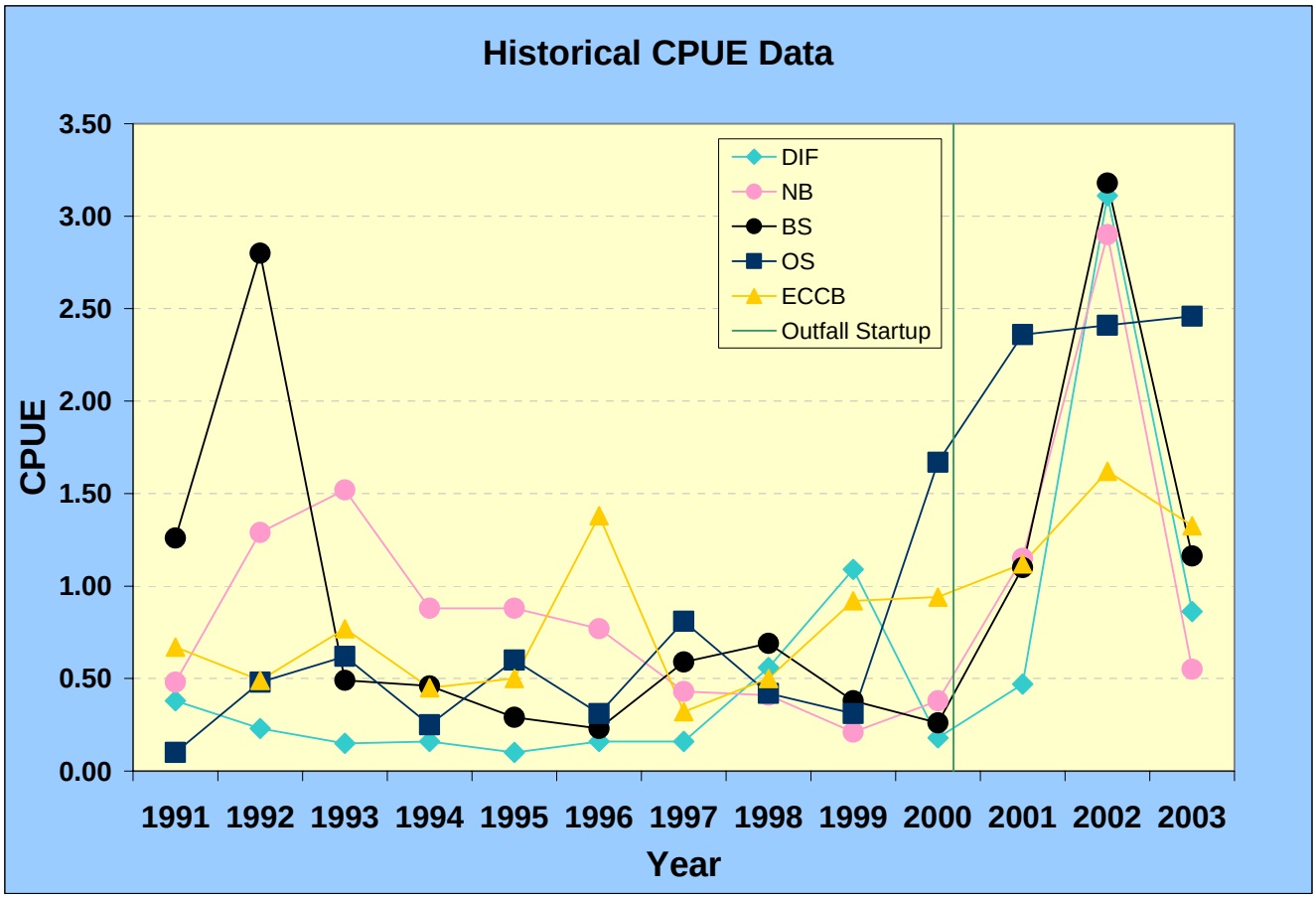


Figure 3-1. Catch per Unit Effort (CPUE) for Winter Flounder Trawled (1991- 2003).

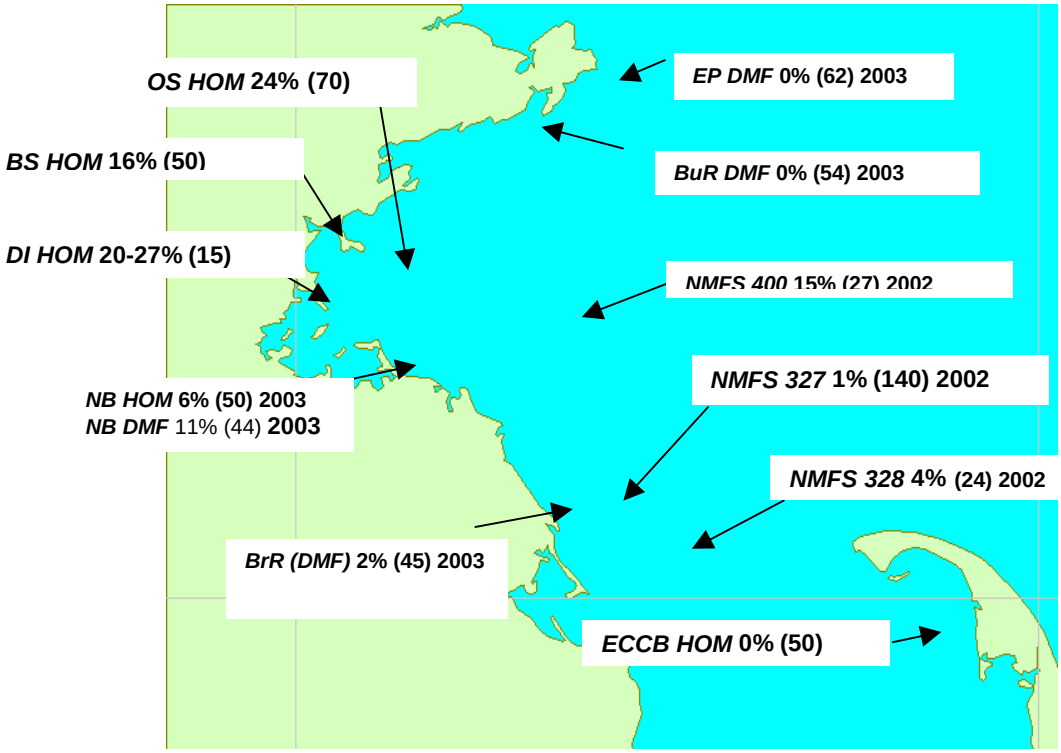


Figure 3-2. Prevalence of Ulcers in Winter Flounder in Boston Harbor Spring 2002/2003.

Data shown as: **'Site' 'Agency' 'Ulcer prevalence in percent observed' (Sample Size) 'year collected'**

Sites: EP = Eastern Point, BuR = Burnham Rocks, OS = Outfall Site, BS = Broad Sound, DI = Deer Island Flats, NB = Nantasket Beach, BrR = Brandt Rock, ECCB = Eastern Cape Cod Bay.

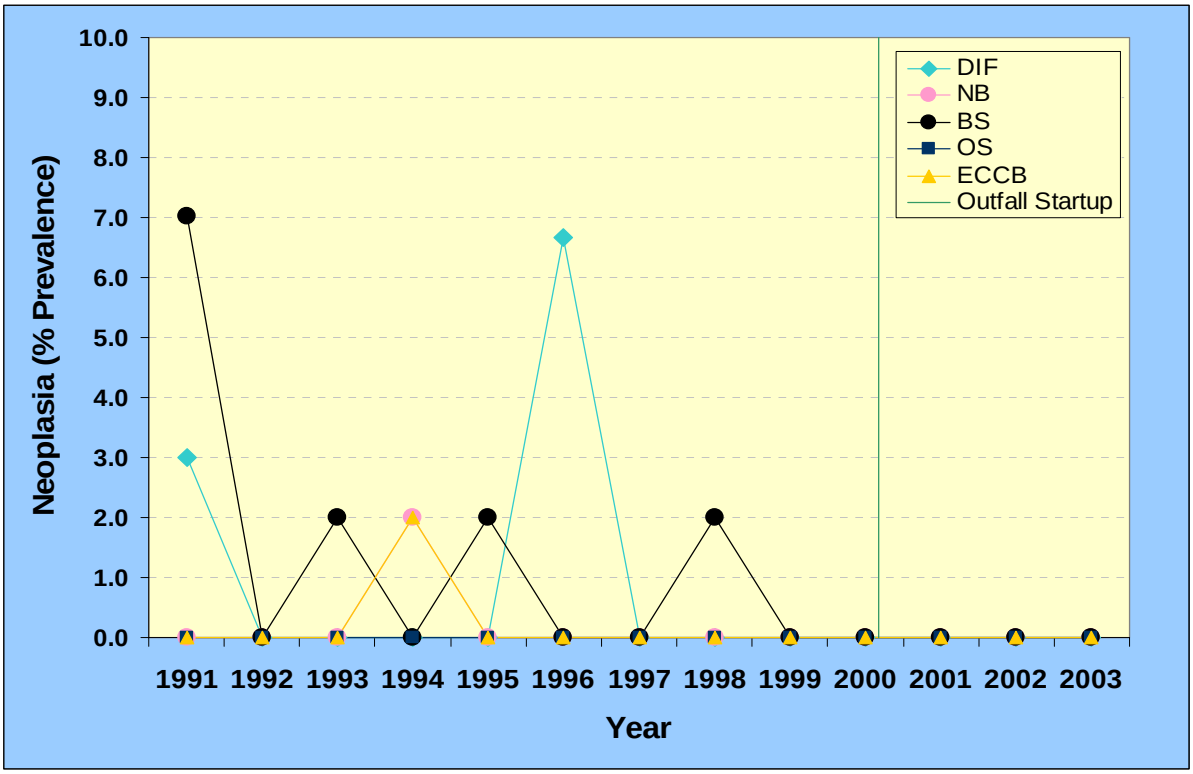


Figure 3-3. Temporal Comparison of Neoplasia Prevalence in Winter Flounder by Station Over Time.

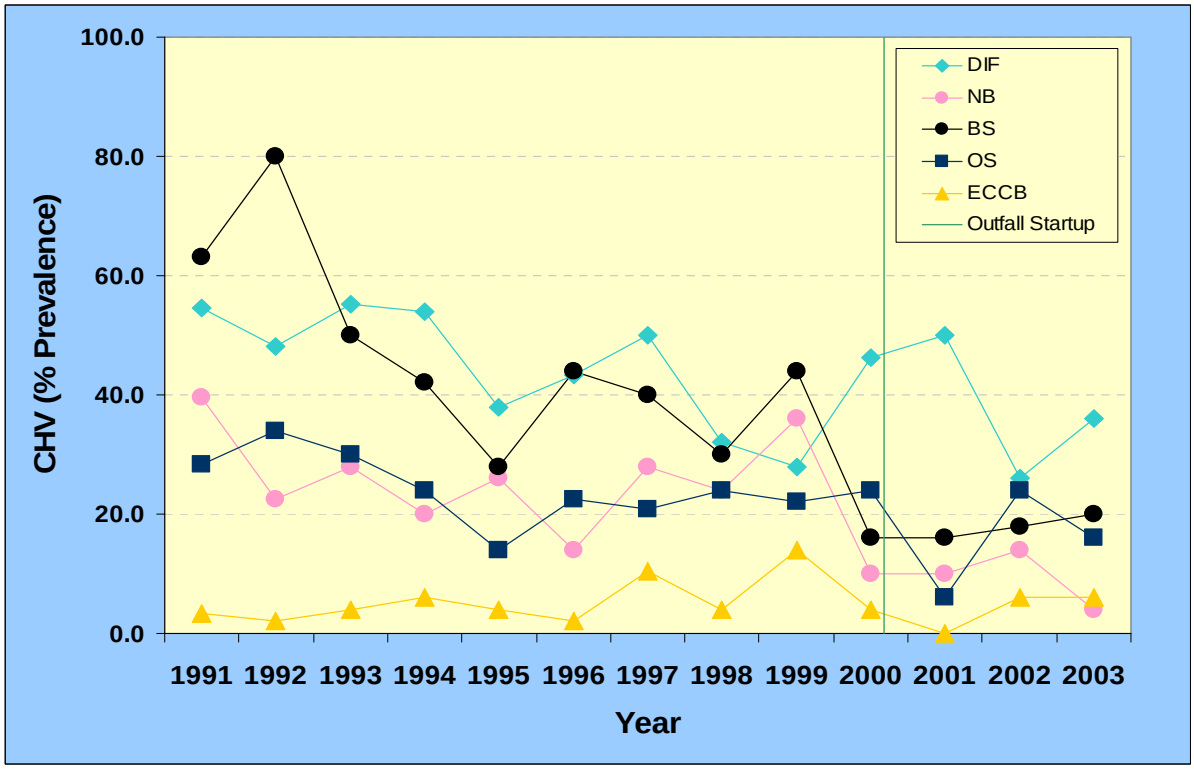


Figure 3-4. Temporal Comparison of Prevalence of Centrotubular Hydropic Vacuolation in Winter Flounder by Station Over Time.

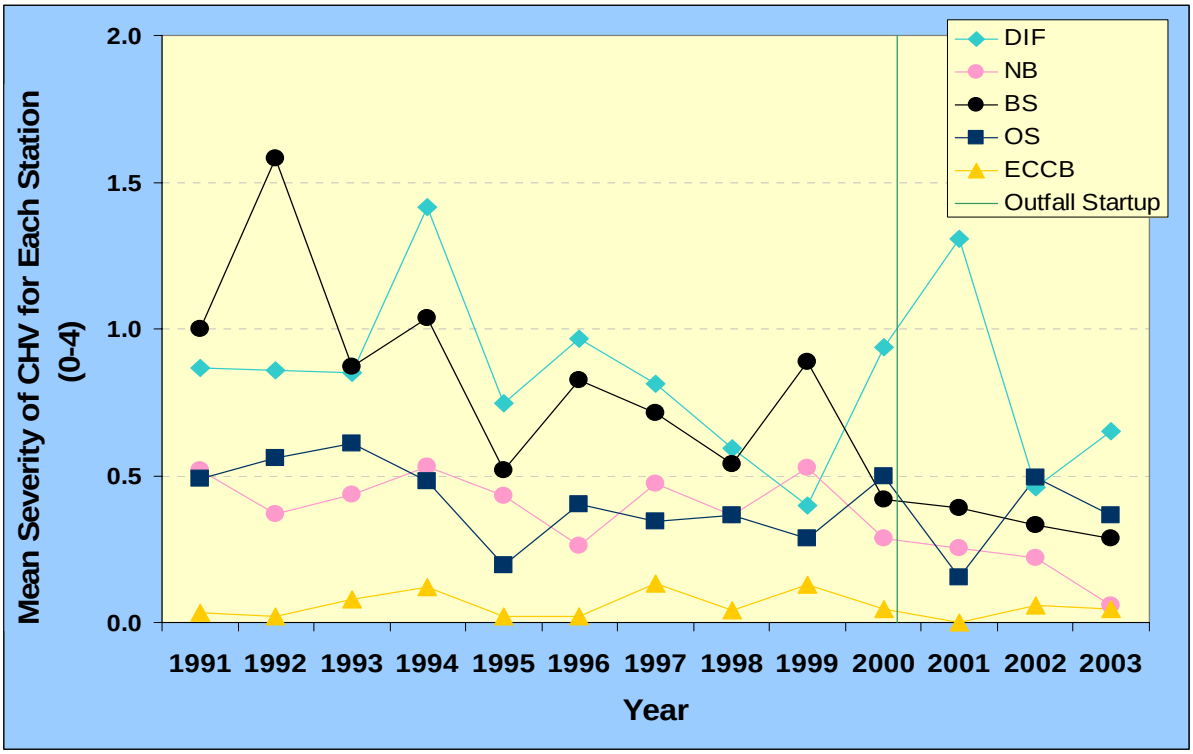


Figure 3-5. Centrotubular Hydropic Vacuolation Severity in Winter Flounder Compared Between Sites and Years.

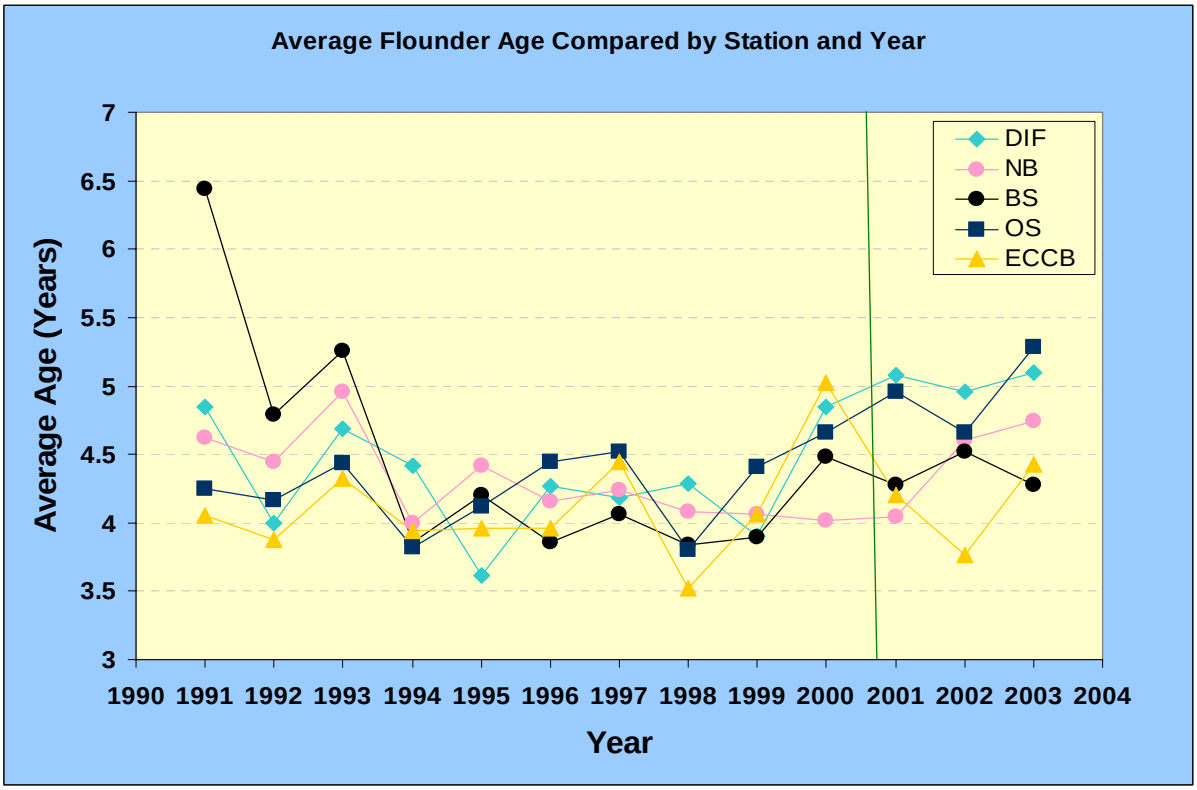


Figure 3-6. Average Flounder Age Compared by Station and Year.

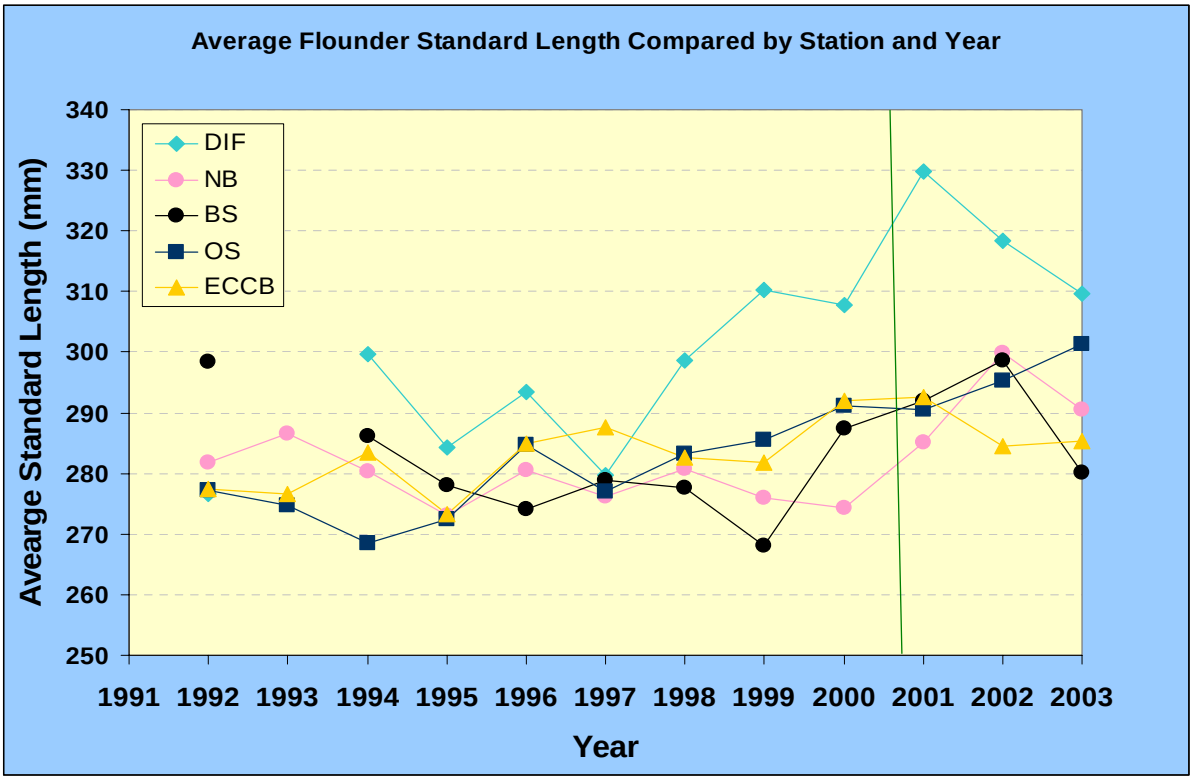


Figure 3-7. Average Flounder Standard Length Compared by Station and Year.

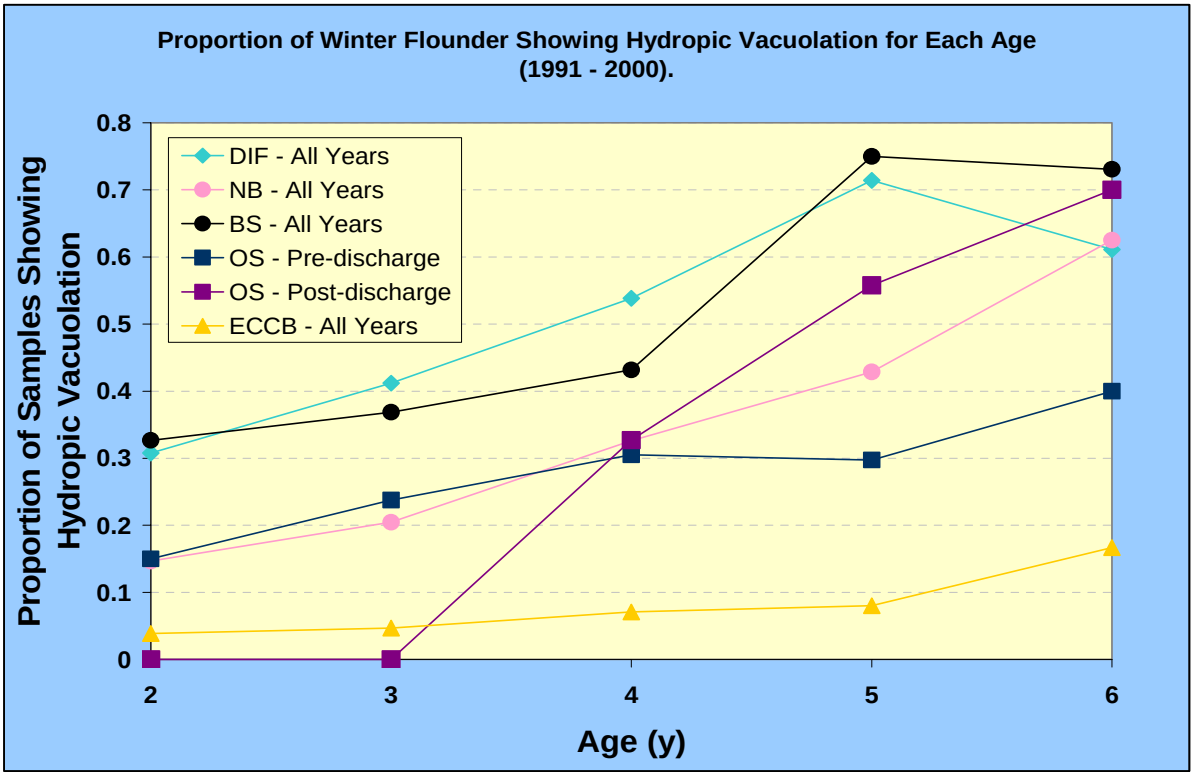


Figure 3-8. Proportion of Winter Flounder Showing Hydropic Vacuolation for Each Age

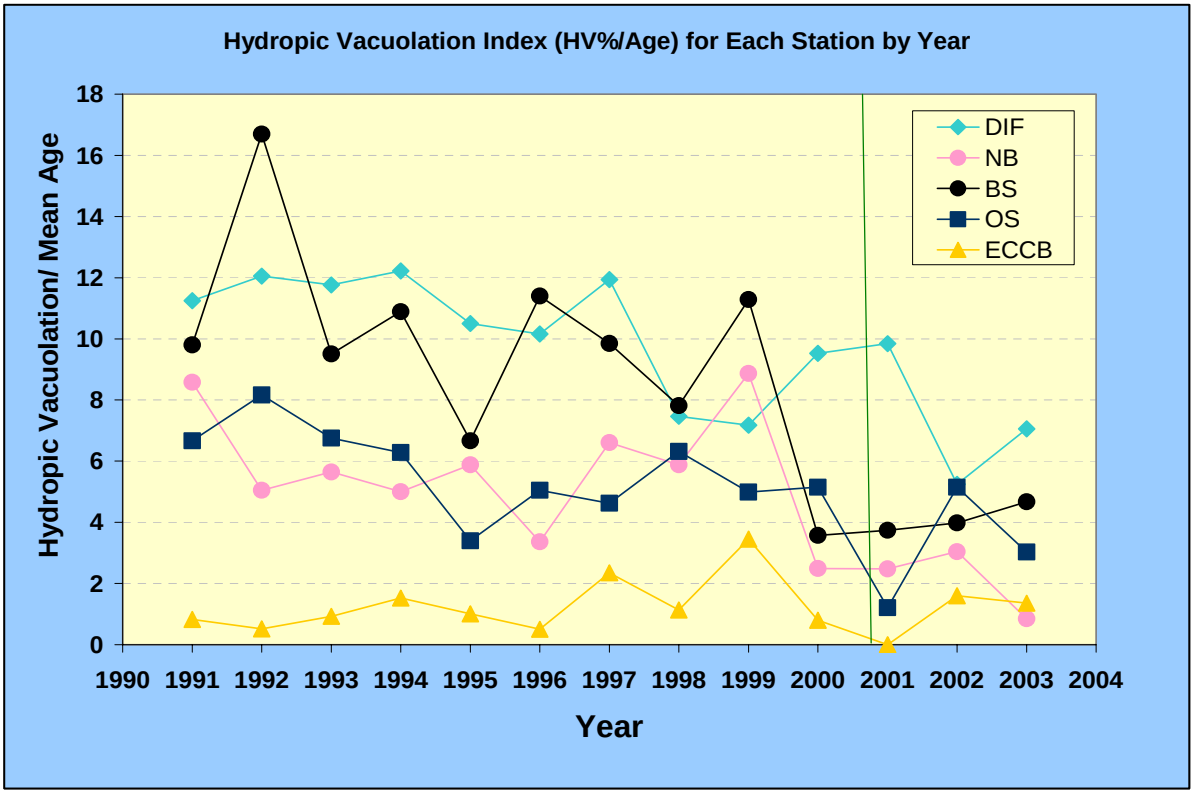


Figure 3-9. Hydropic Vacuolation Index (HV%/Age) for Each Station by Year.

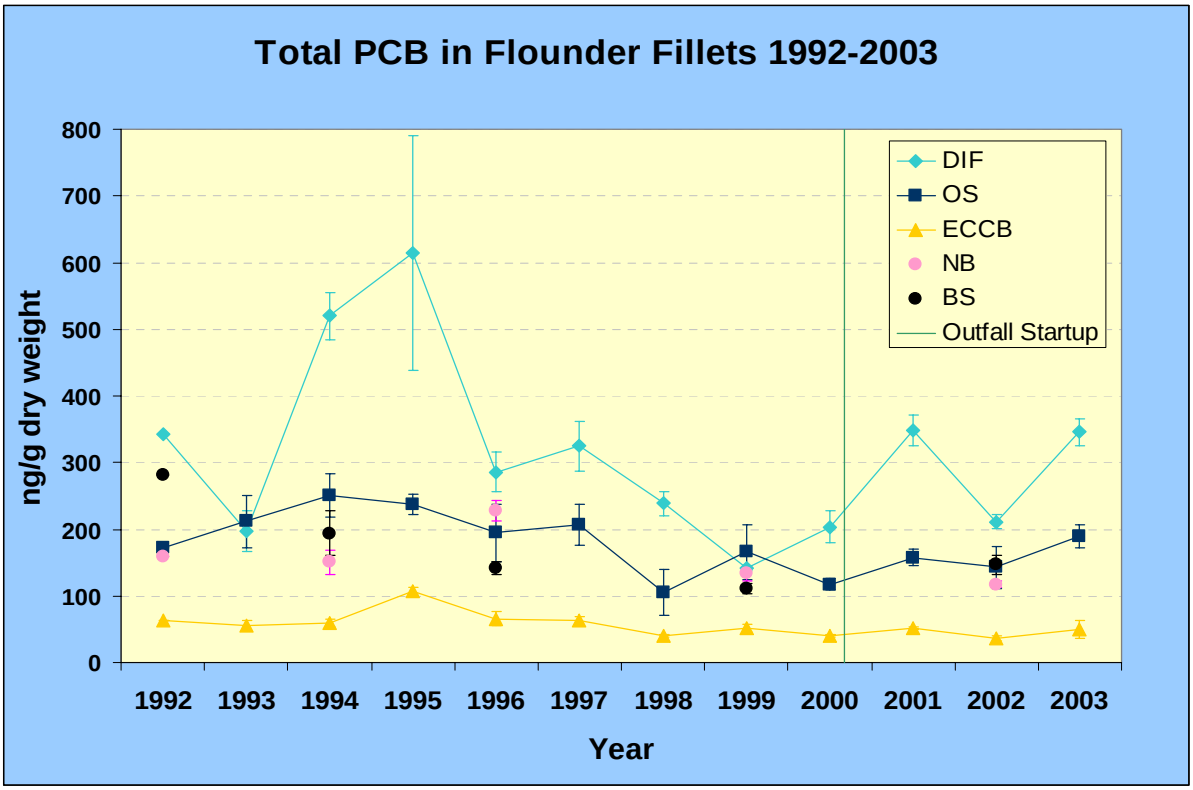


Figure 3-10. Total PCB in Flounder Fillets at the Five Collection Sites from 1992-2003.

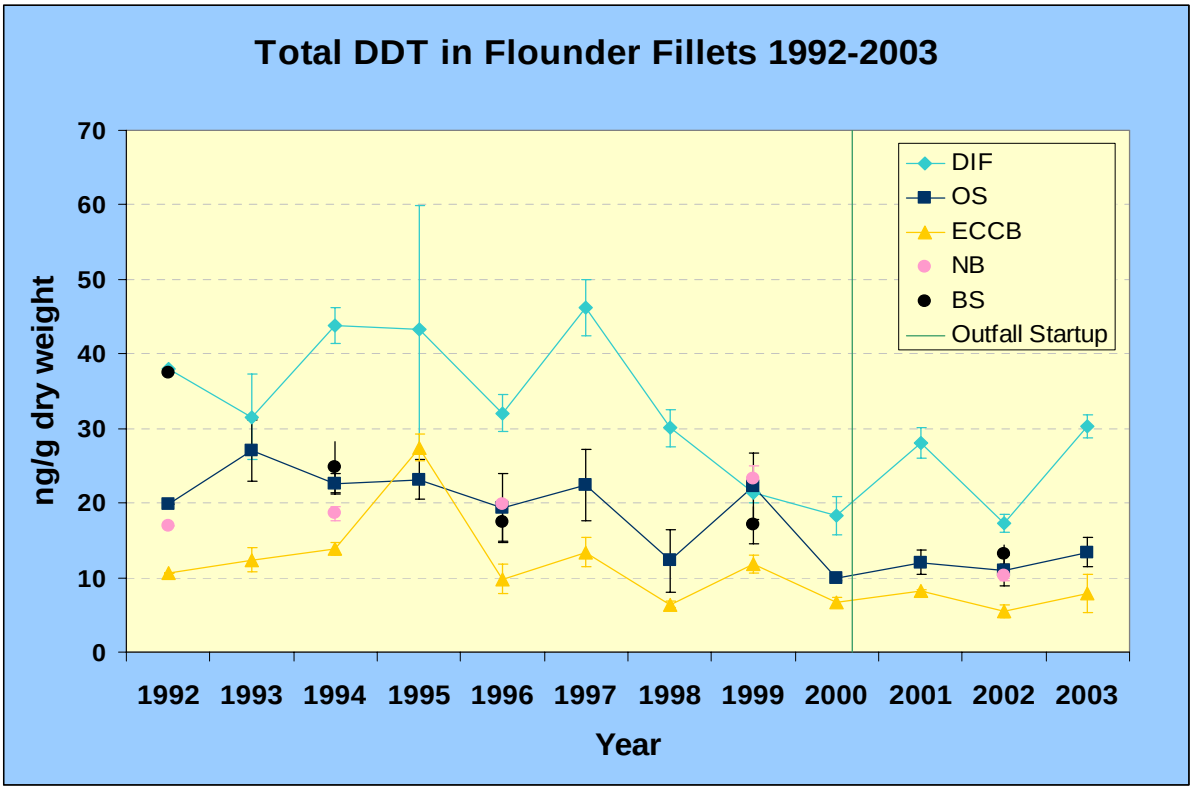


Figure 3-11. Total DDT in Flounder Fillets at the Five Collection Sites from 1992-2003.

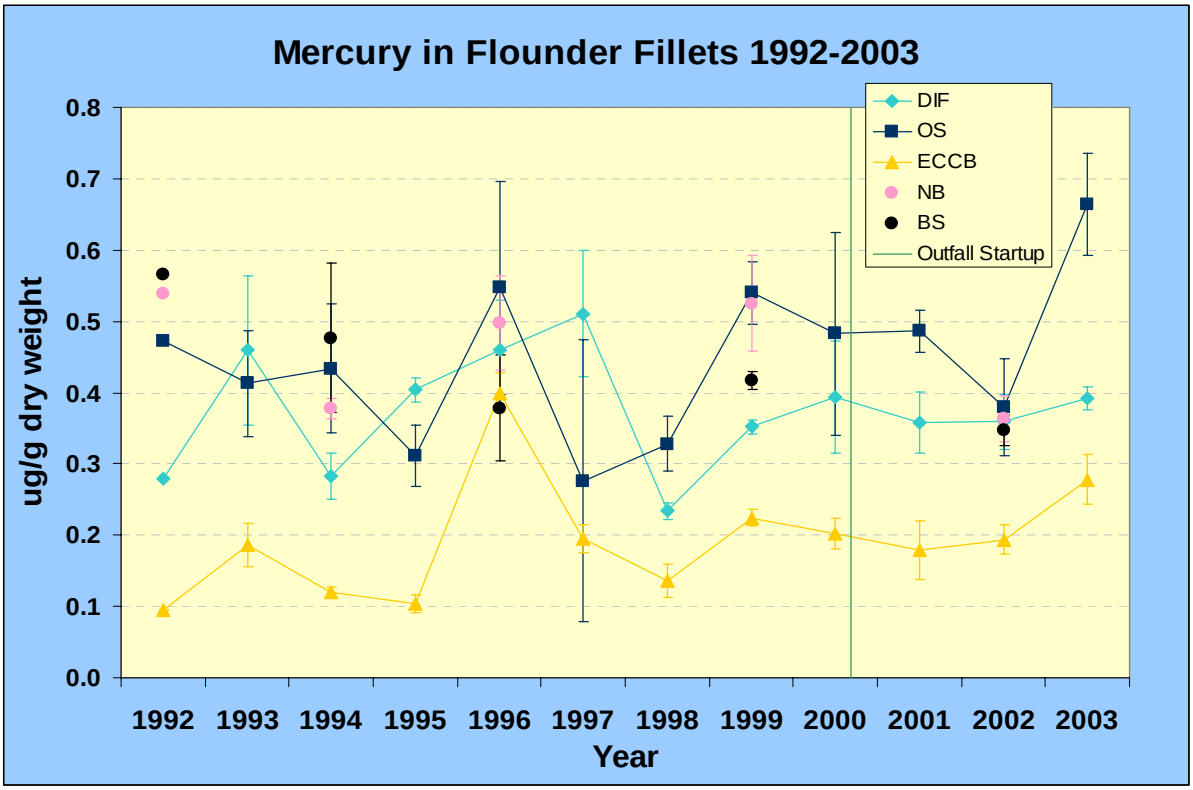


Figure 3-12. Mercury in Flounder Fillets at the Five Collection Sites from 1992-2003.

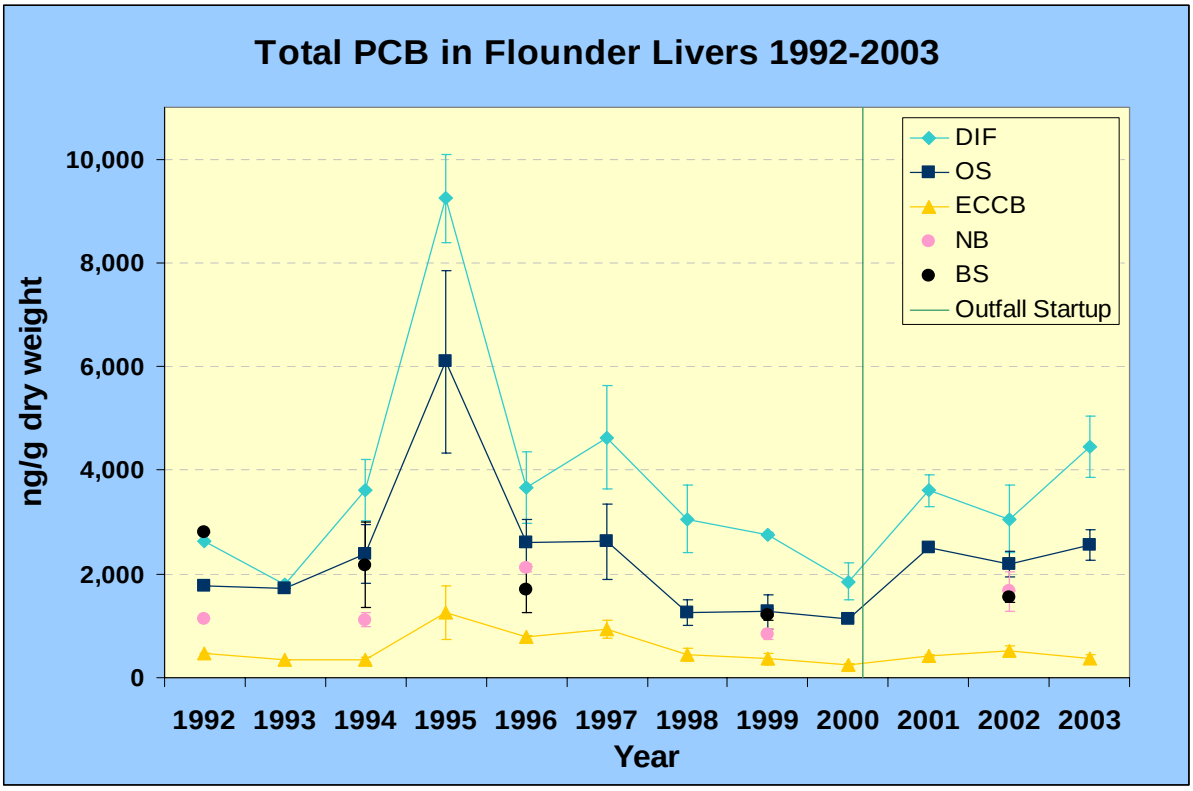


Figure 3-13. Total PCB in Flounder Livers at the Five Collection Sites from 1992-2003.

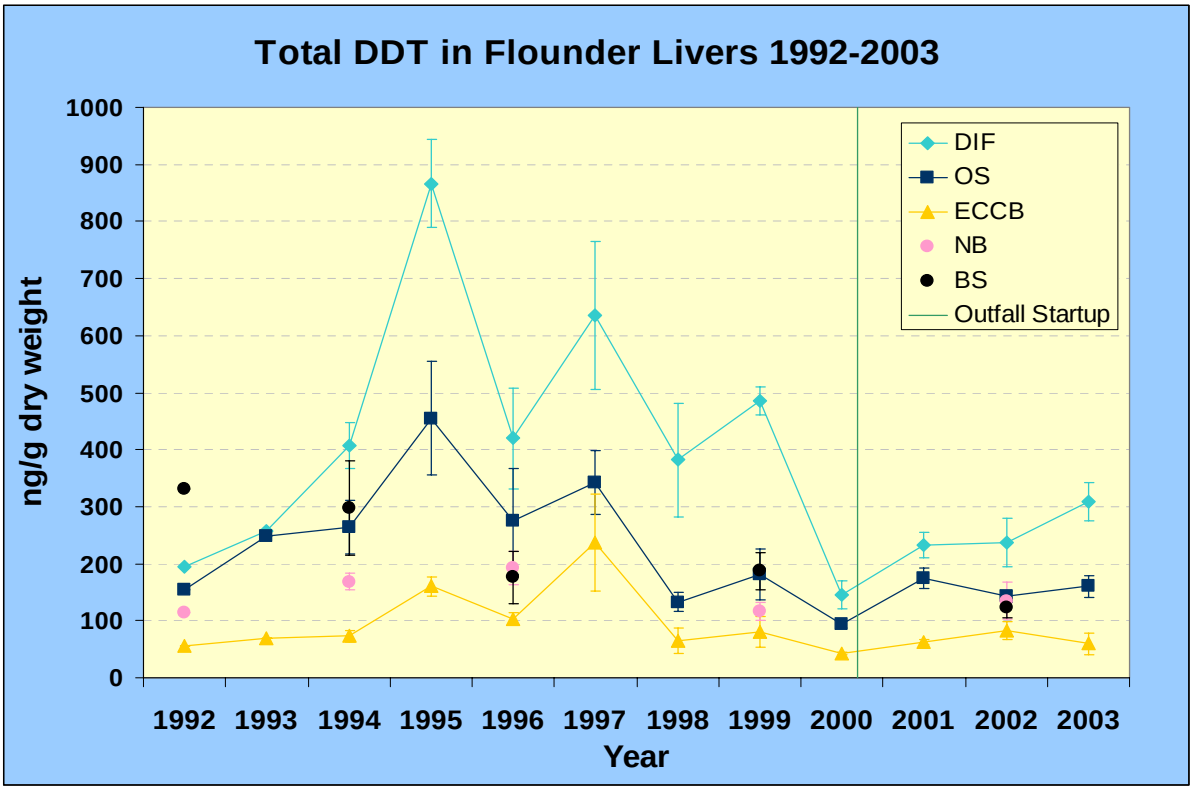


Figure 3-14. Total DDT in Flounder Livers at the Five Collection Sites from 1992-2003.

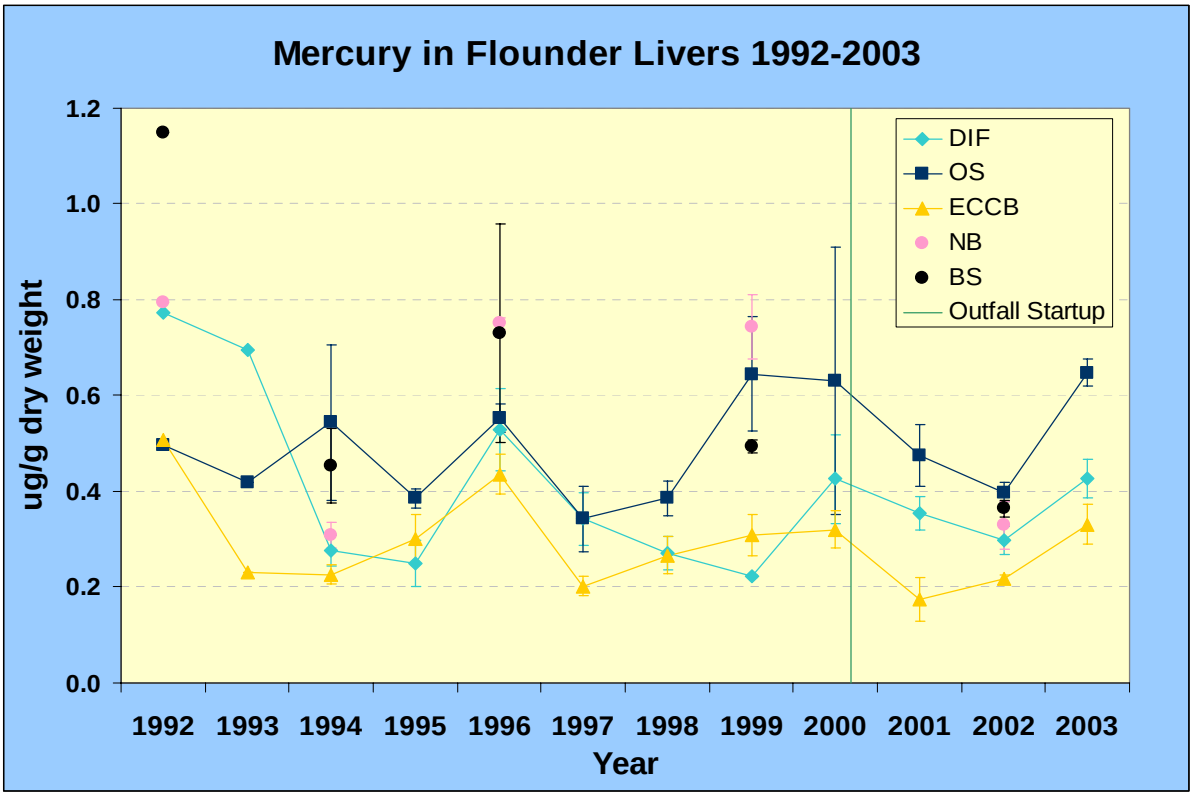


Figure 3-15. Mercury in Flounder Livers at the Five Collection Sites from 1992-2003.

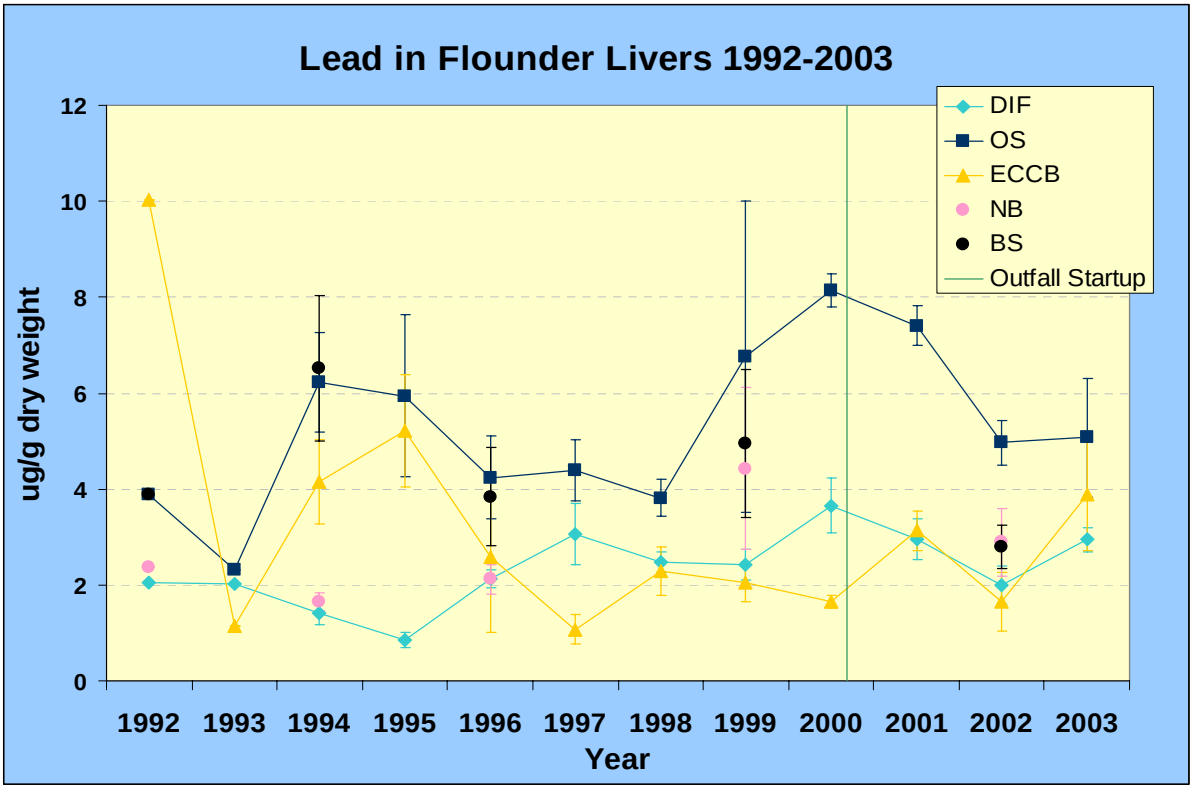


Figure 3-16. Lead in Flounder Livers at the Five Collection Sites from 1992-2003.

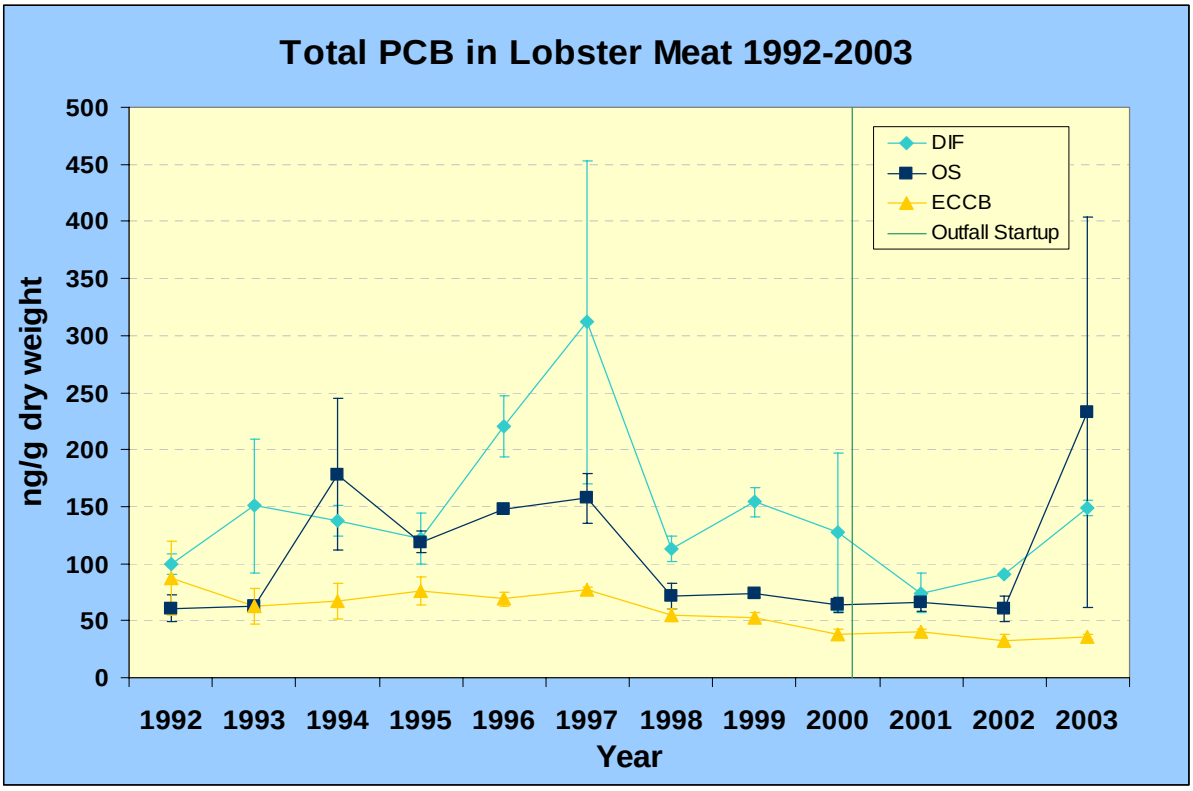


Figure 3-17. Total PCB in Lobster Meat at DIF, OS, and ECCB from 1992-2003.

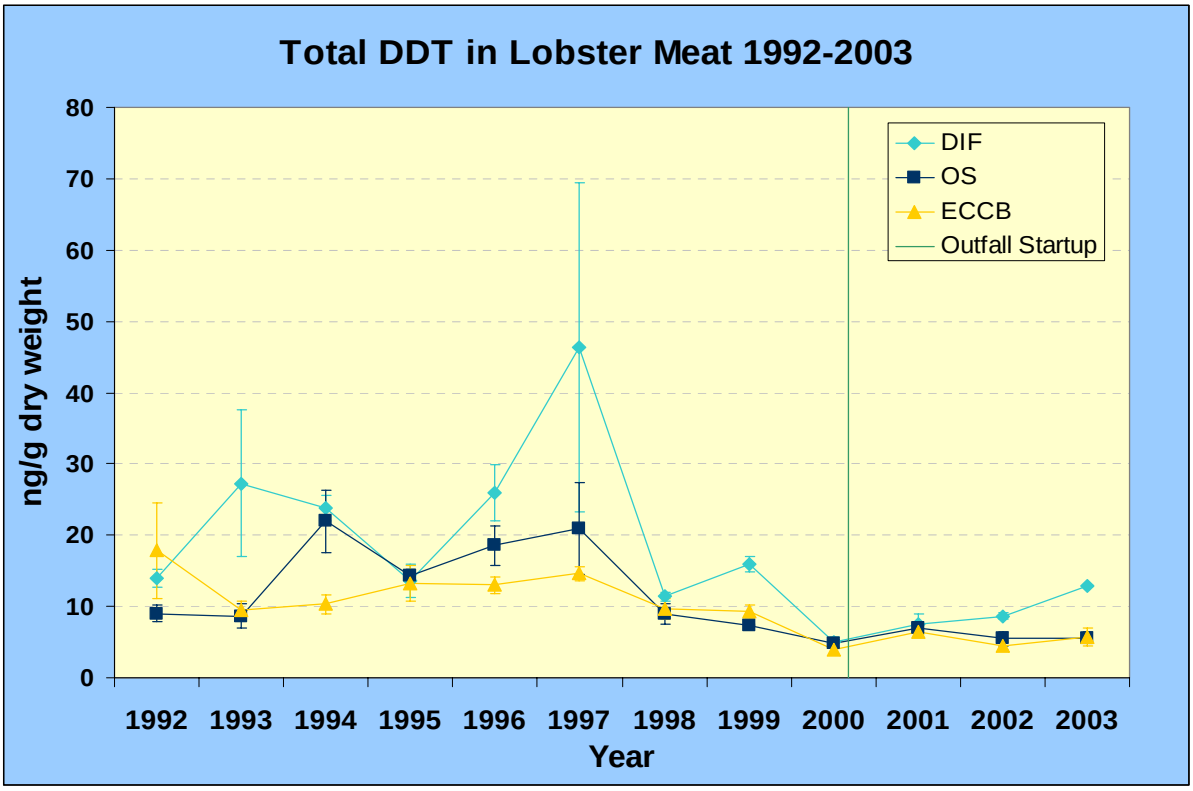


Figure 3-18. Total DDT in Lobster Meat at DIF, OS, and ECCB from 1992-2003.

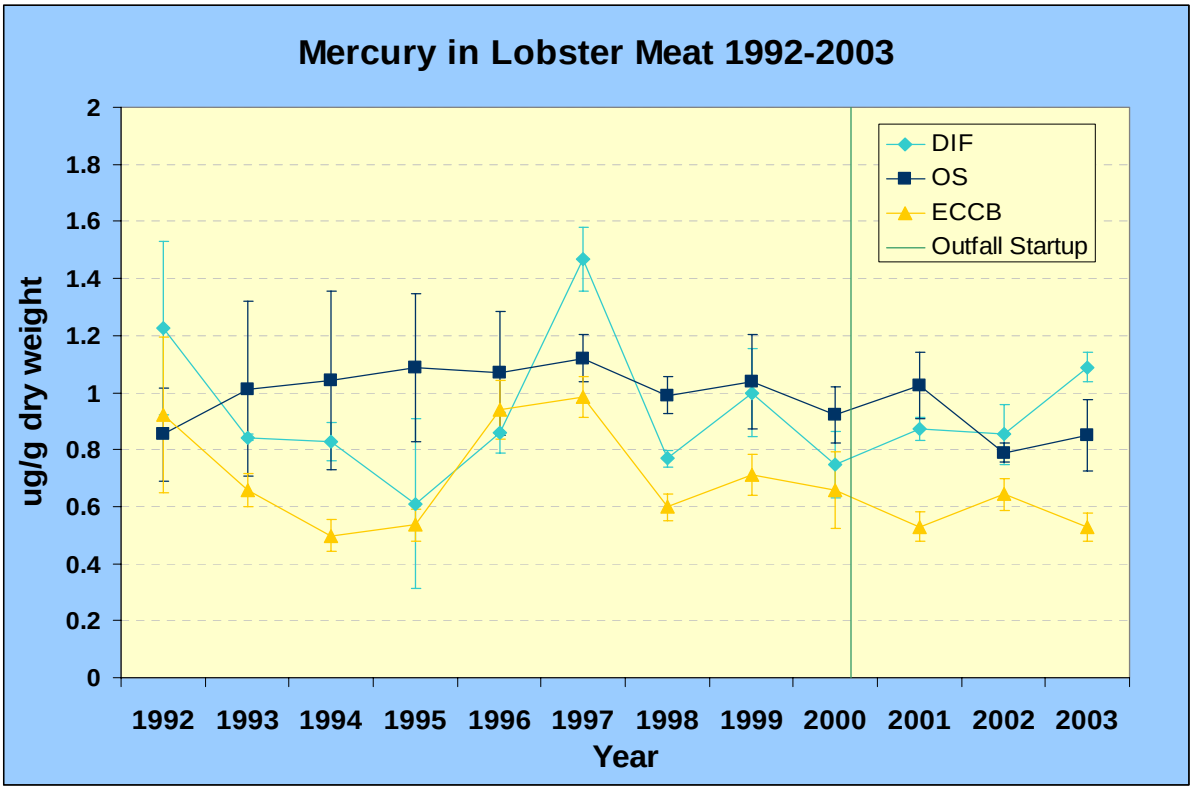


Figure 3-19. Mercury in Lobster Meat at DIF, OS, and ECCB from 1992-2003.

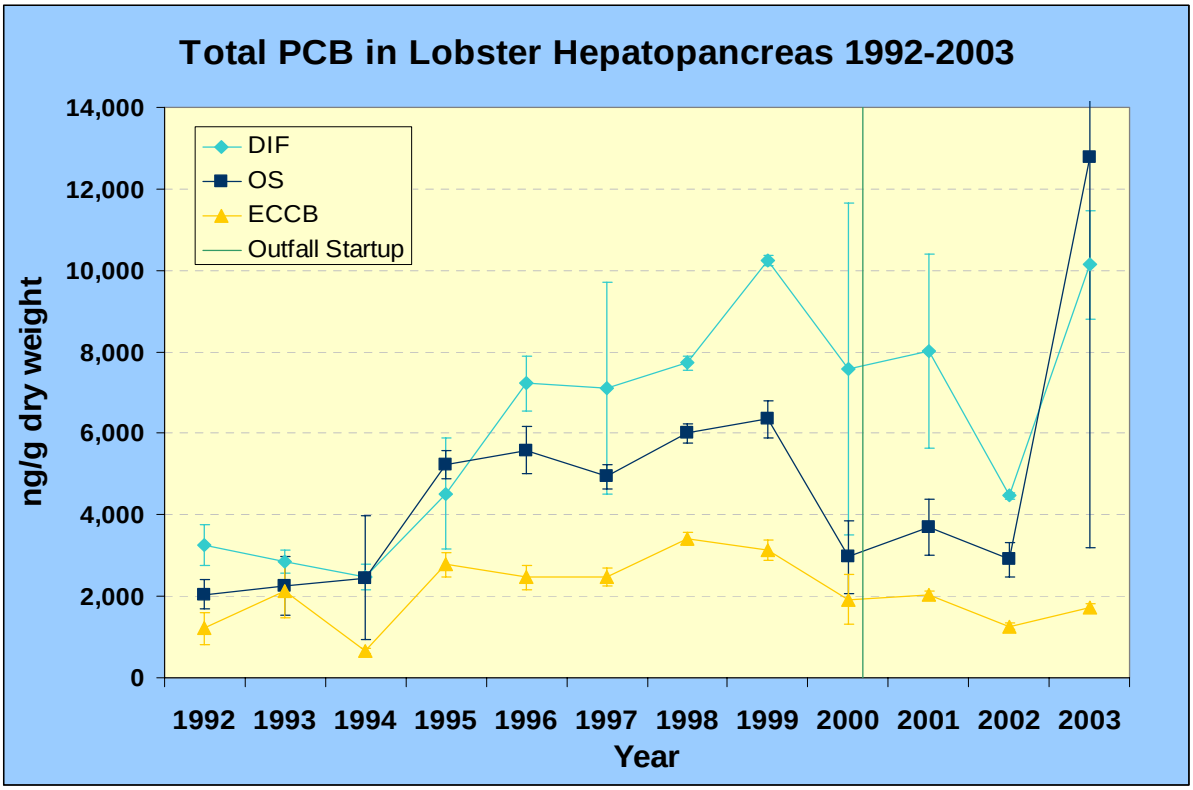


Figure 3-20. Total PCB in Lobster Hepatopancreas at DIF, OS, and ECCB from 1992-2003.

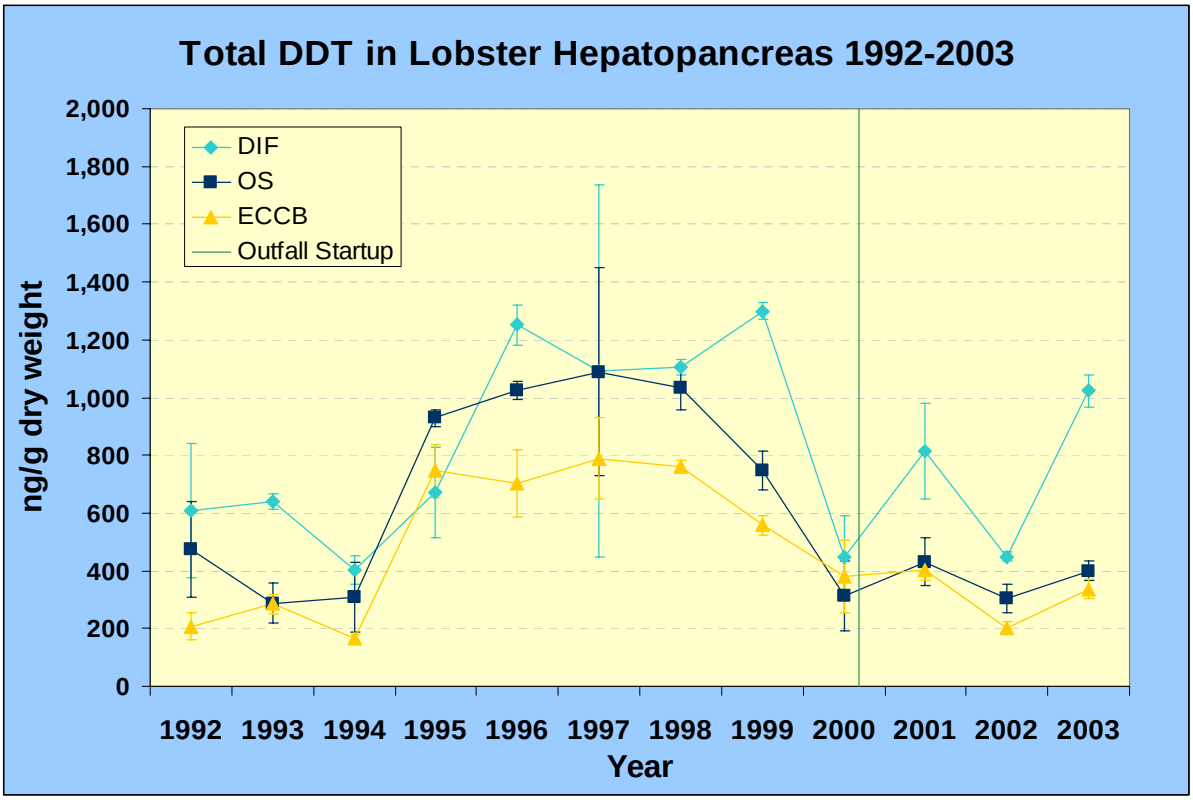


Figure 3-21. Total DDT in Lobster Hepatopancreas at DIF, OS, and ECCB from 1992-2003.

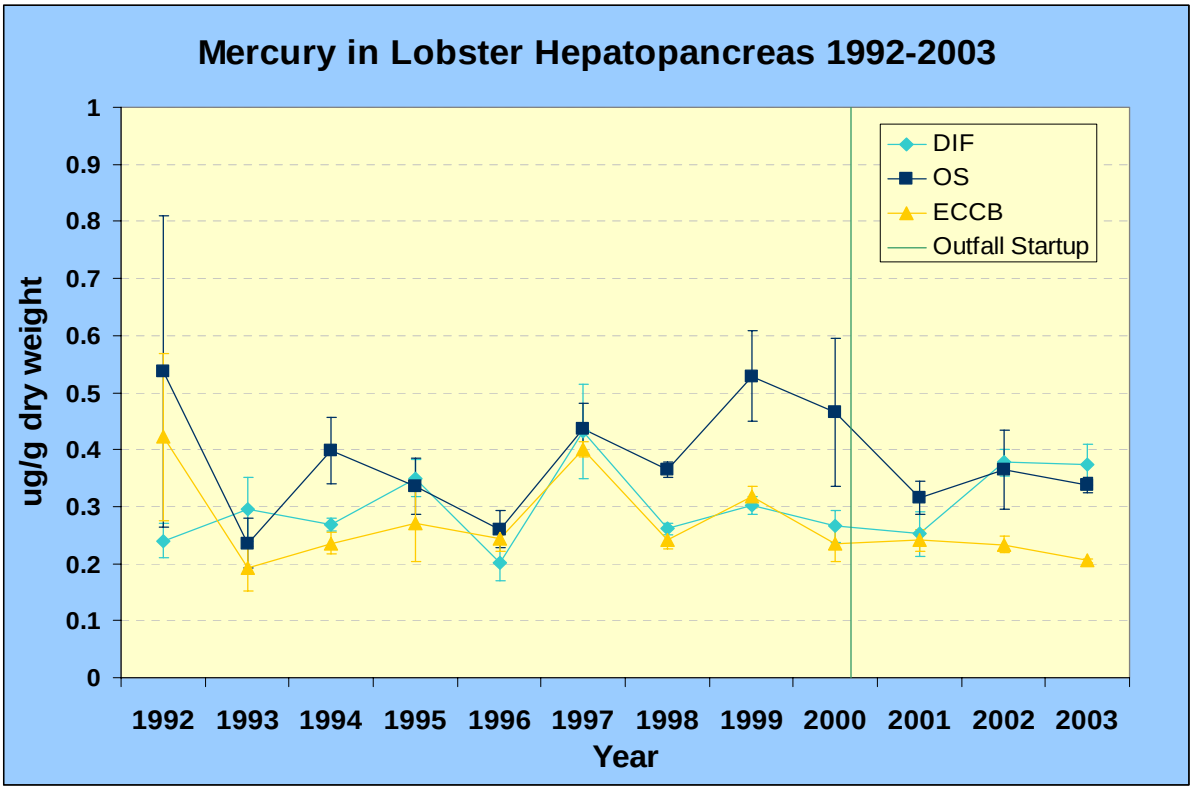


Figure 3-22. Mercury in Lobster Hepatopancreas at DIF, OS, and ECCB from 1992-2003.

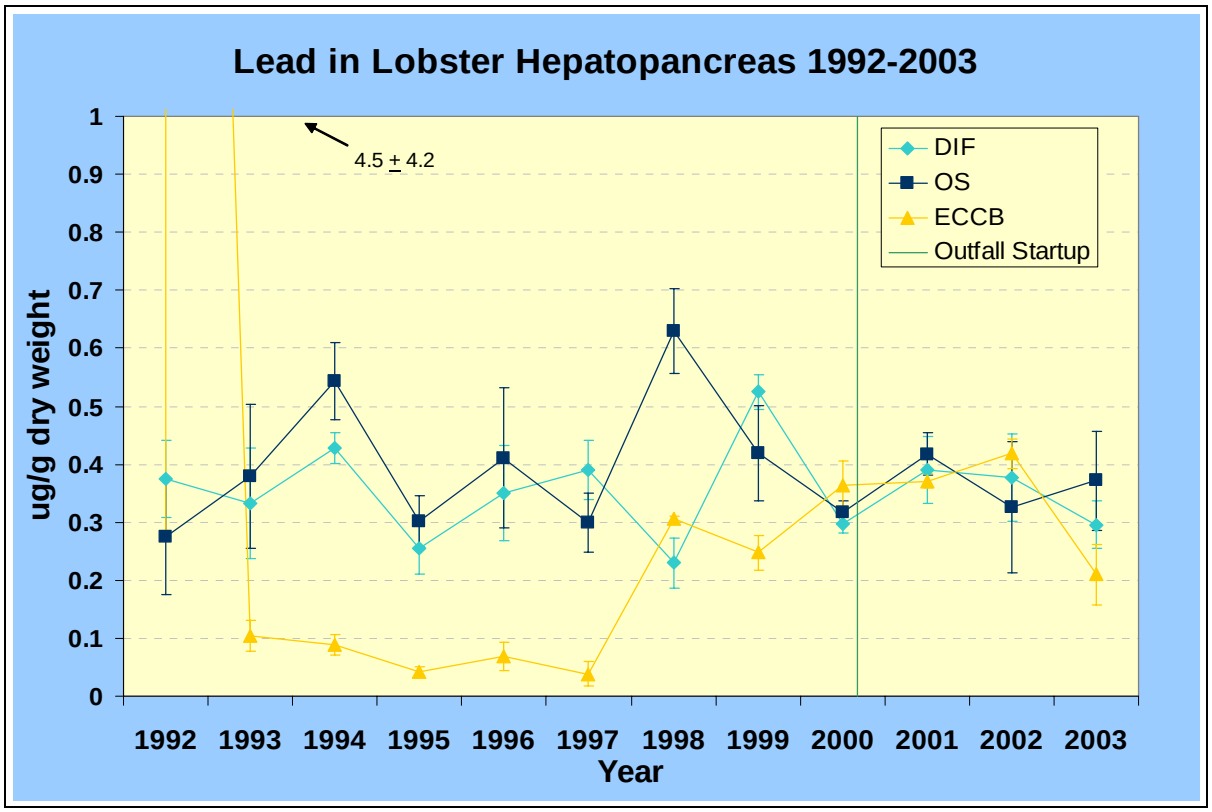


Figure 3-23. Lead in Lobster Hepatopancreas at DIF, OS and ECCB from 1992-2003.

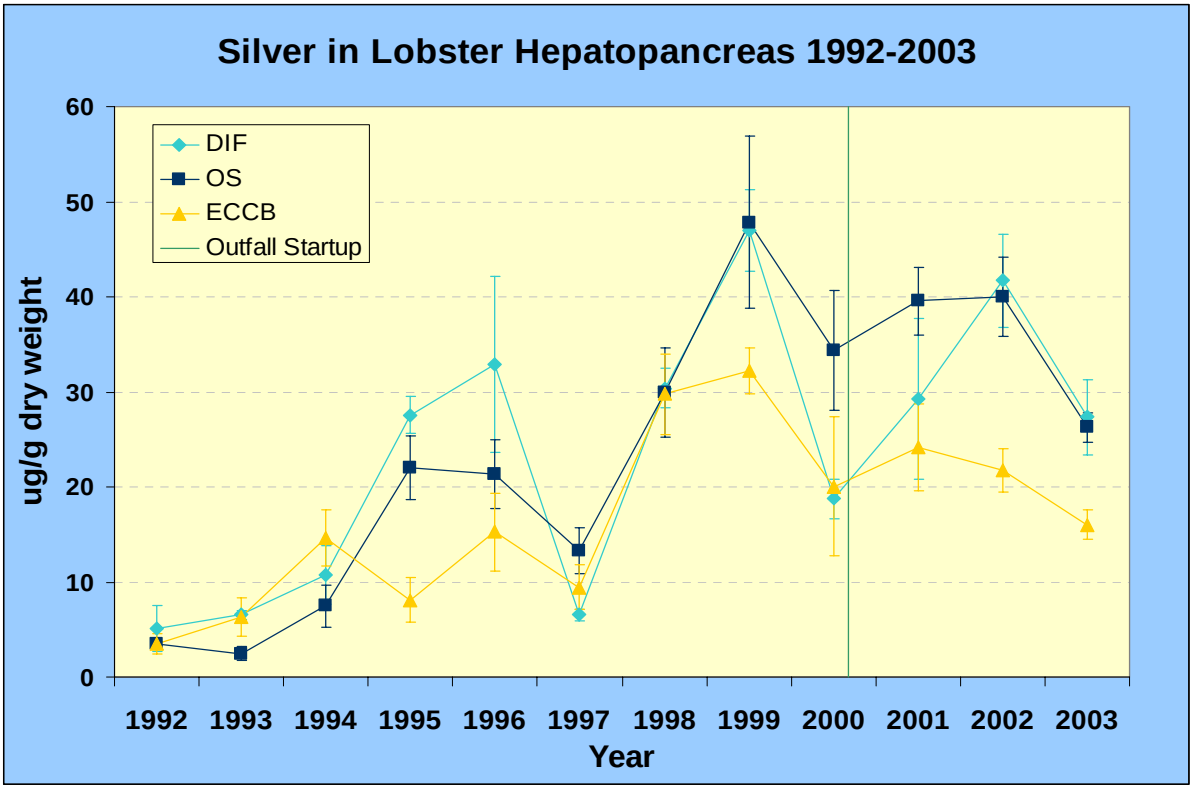
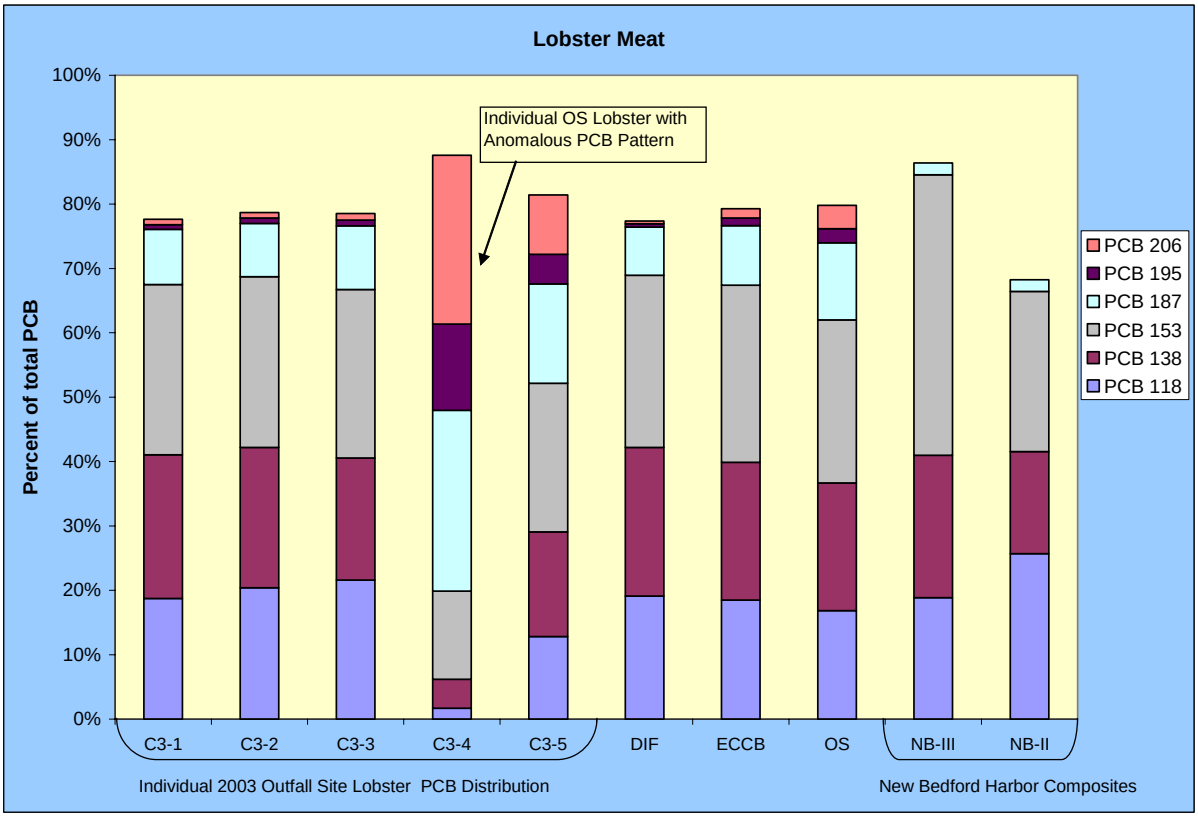


Figure 3-24. Silver in Lobster Hepatopancreas at DIF, OS and ECCB from 1992-2003.



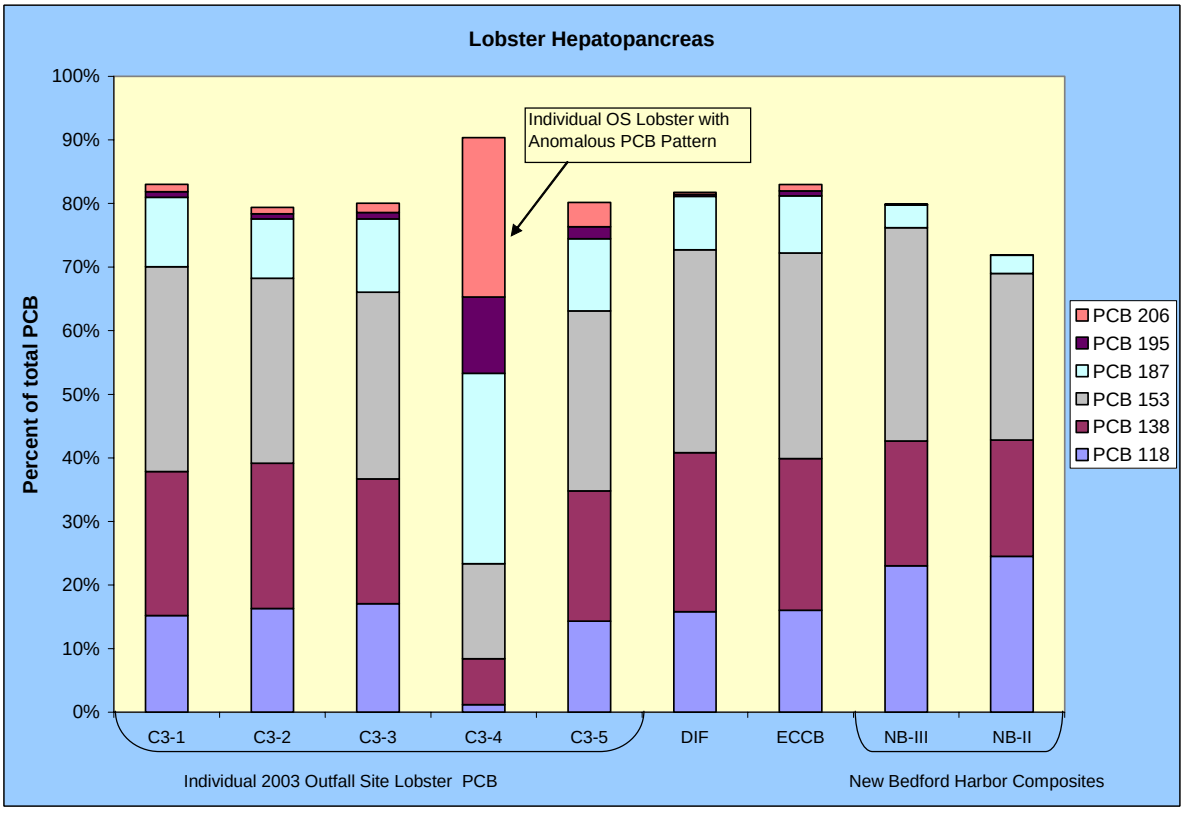


Figure 3-25. Distribution of Selected PCB Congeners in OS-C3 Lobster Composite (Meat and Hepatopancreas.

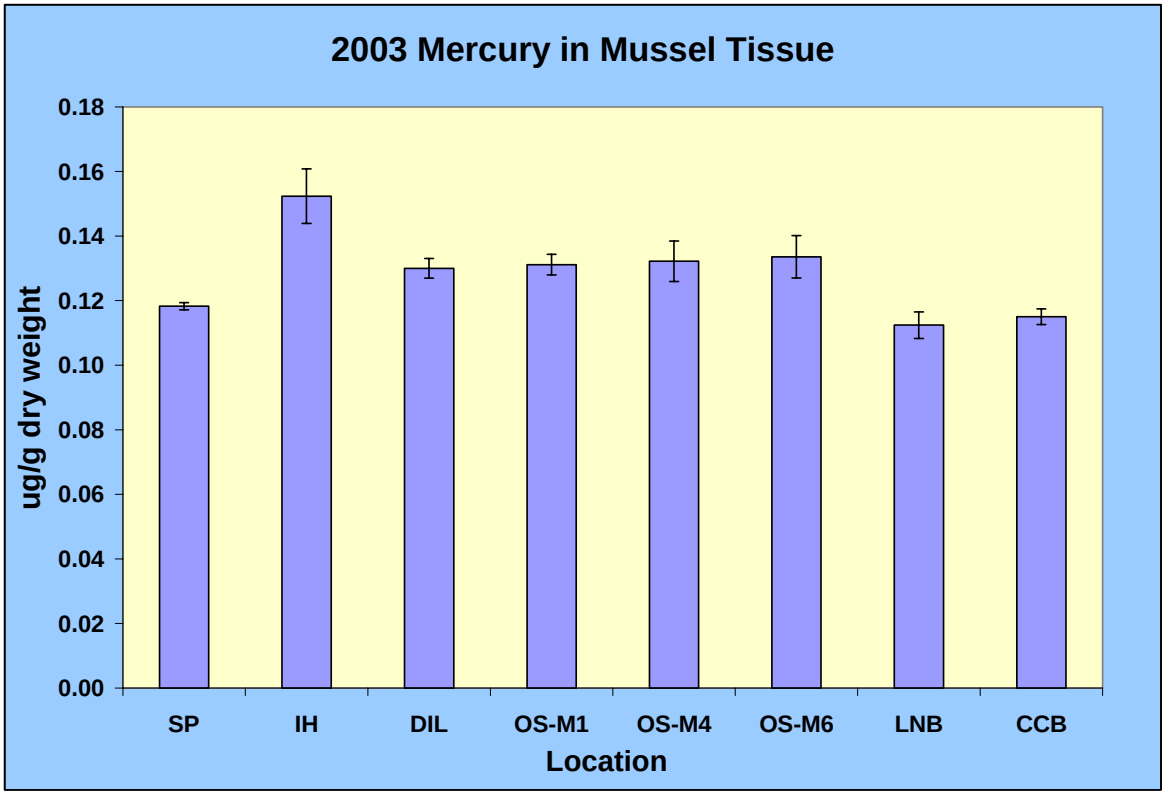


Figure 3-26. Mercury in 2003 Pre-deployed Mussels and Five Deployment Locations.

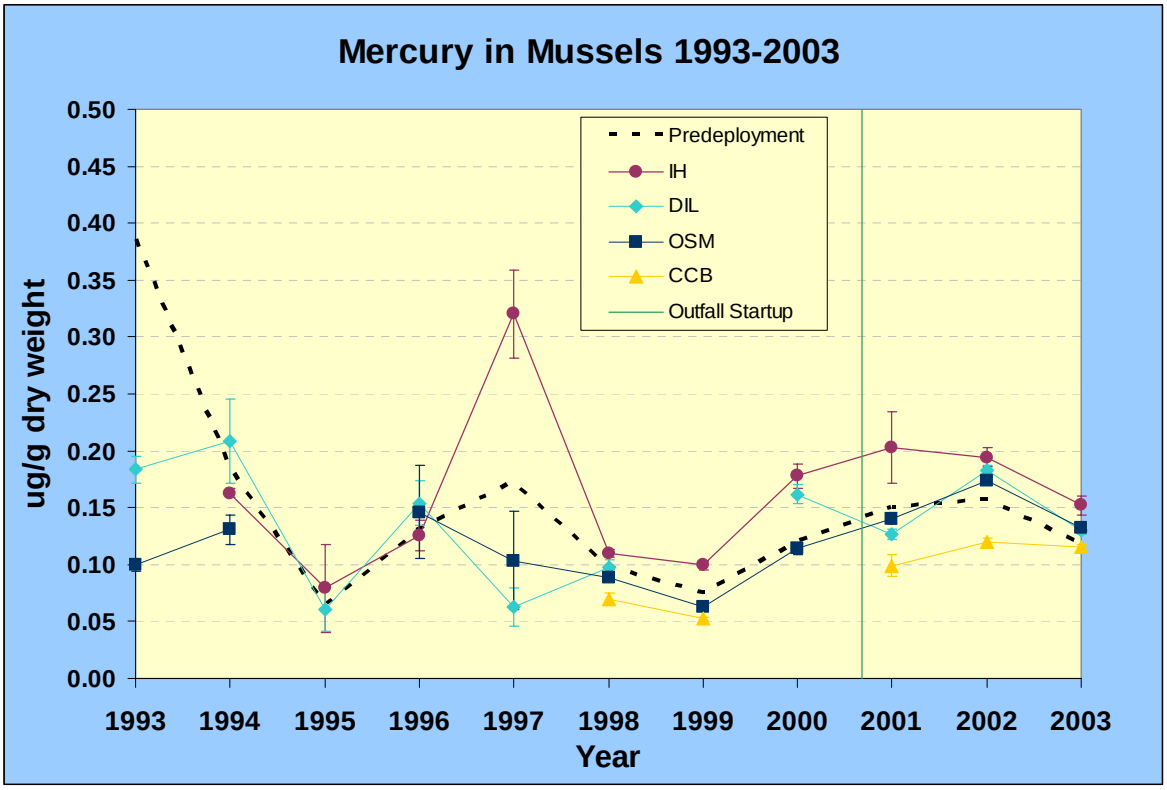


Figure 3-27. Mercury in Pre-deployed and Deployed Mussels from 1993-2003.

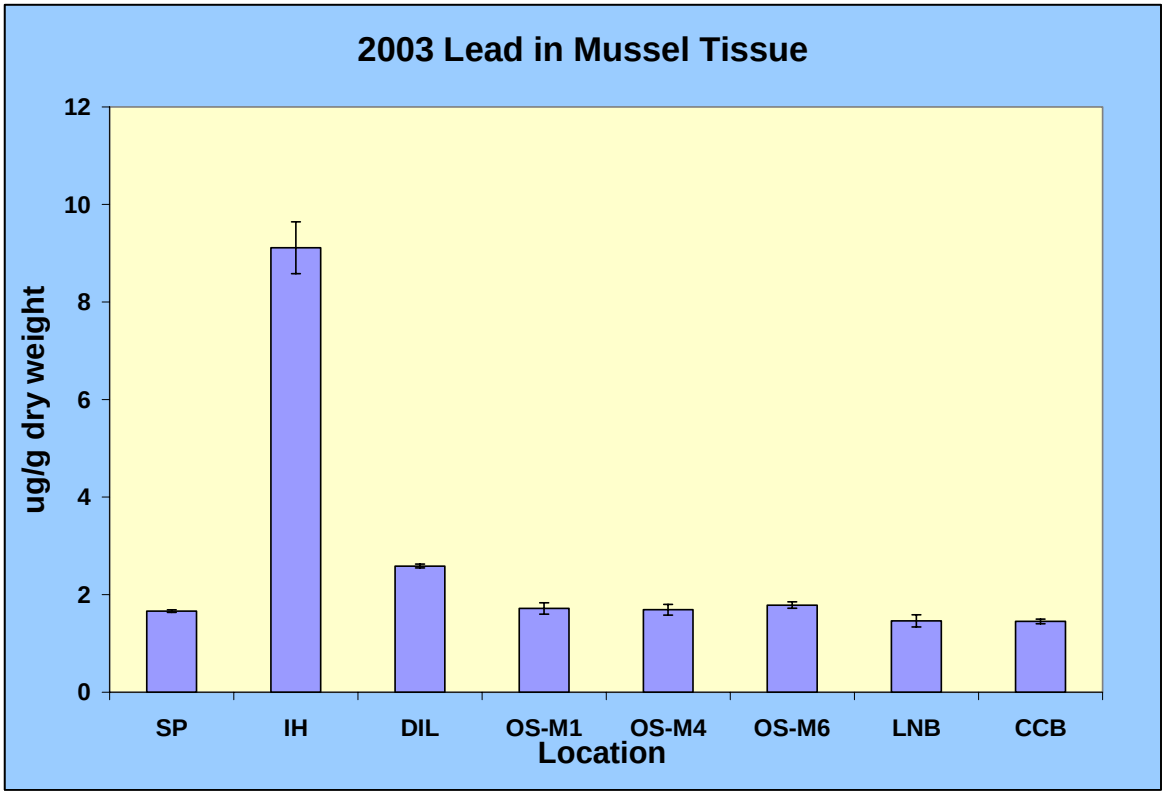


Figure 3-28. Lead in 2003 Pre-deployed Mussels and Five Deployment Locations.

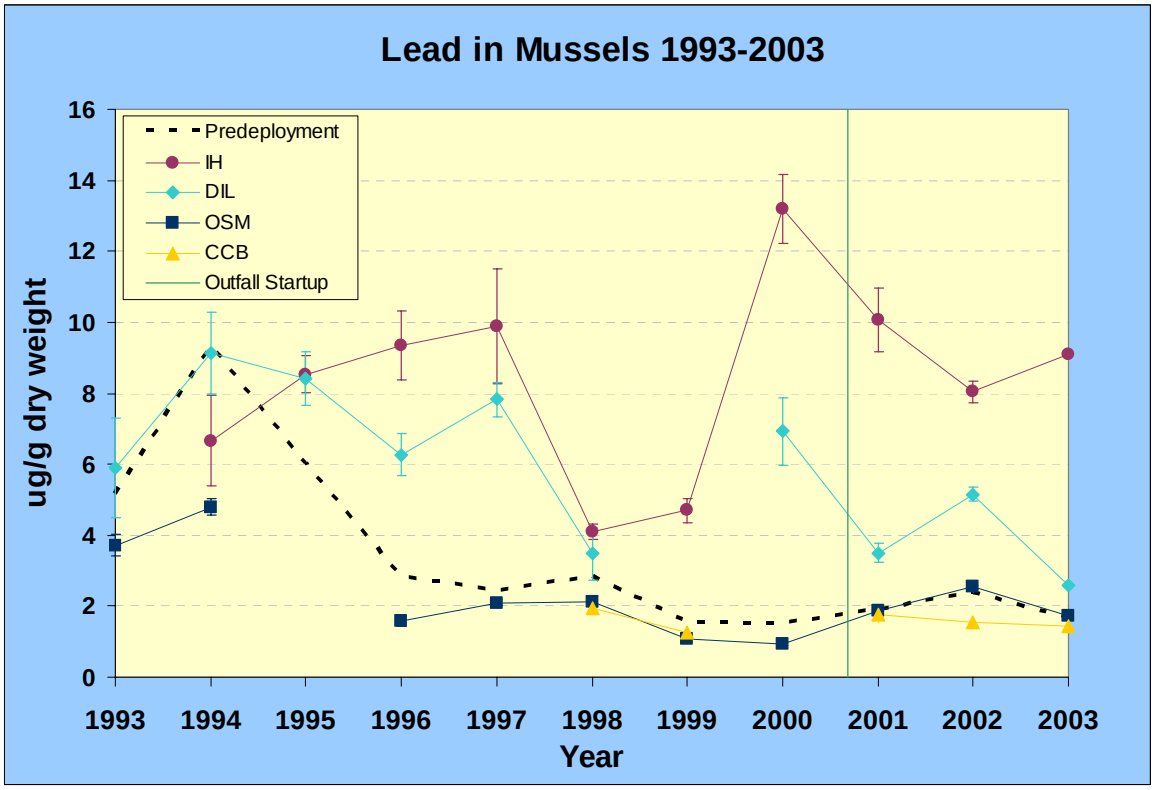


Figure 3-29. Lead in Pre-deployed and Deployed Mussels from 1991 and 1993-2003.

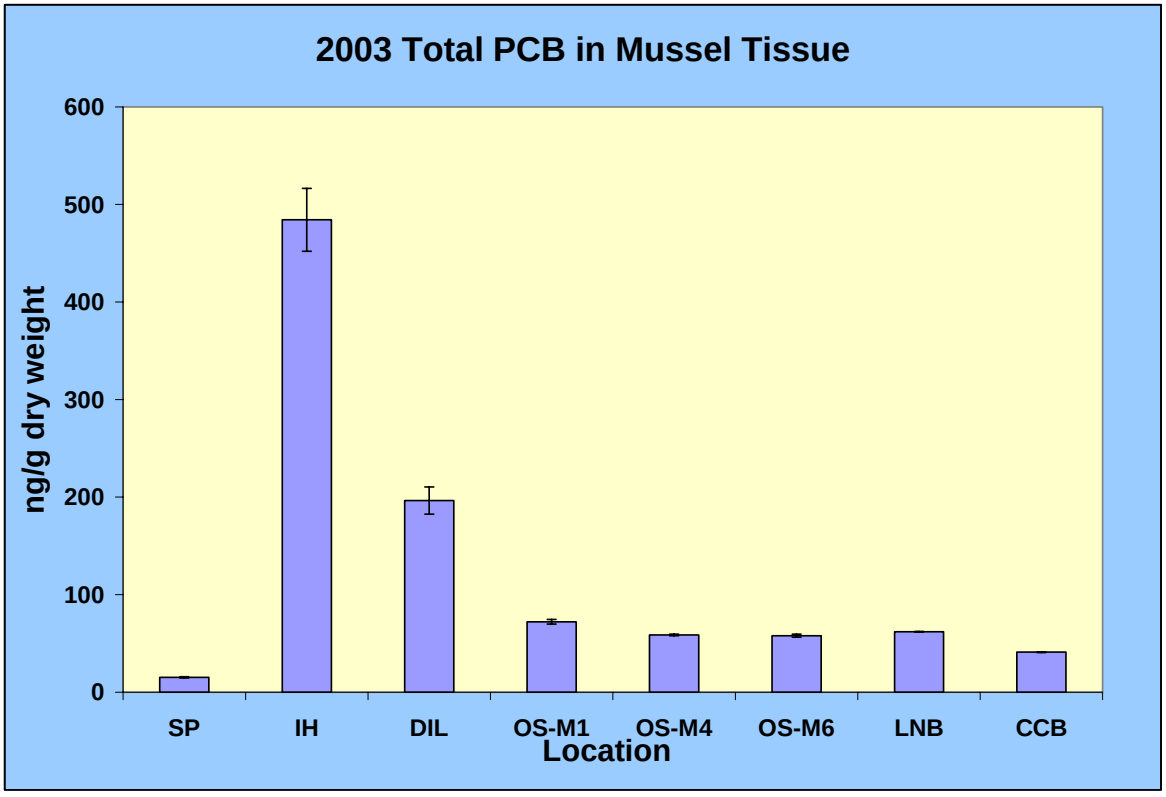


Figure 3-30. Total PCB in 2003 Pre-deployed Mussels and Five Deployment Locations.

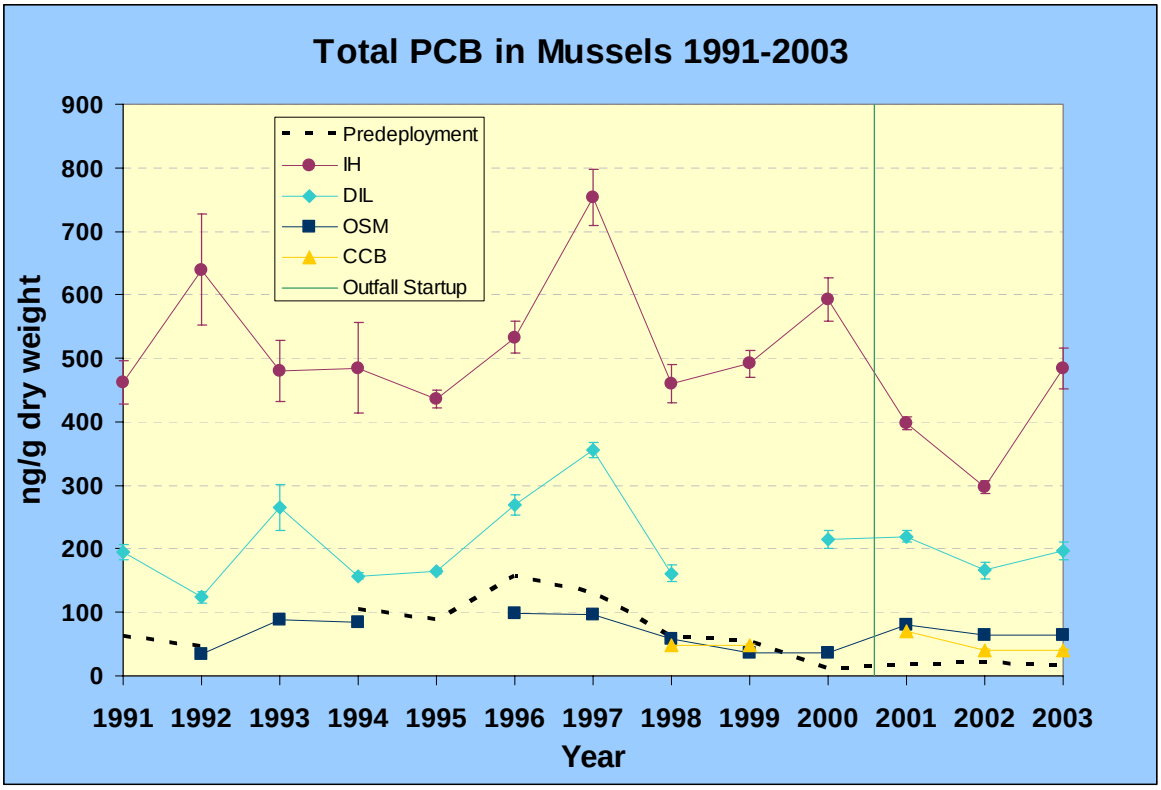


Figure 3-31. Total PCB in Pre-deployed and Deployed Mussels from 1991-2003.

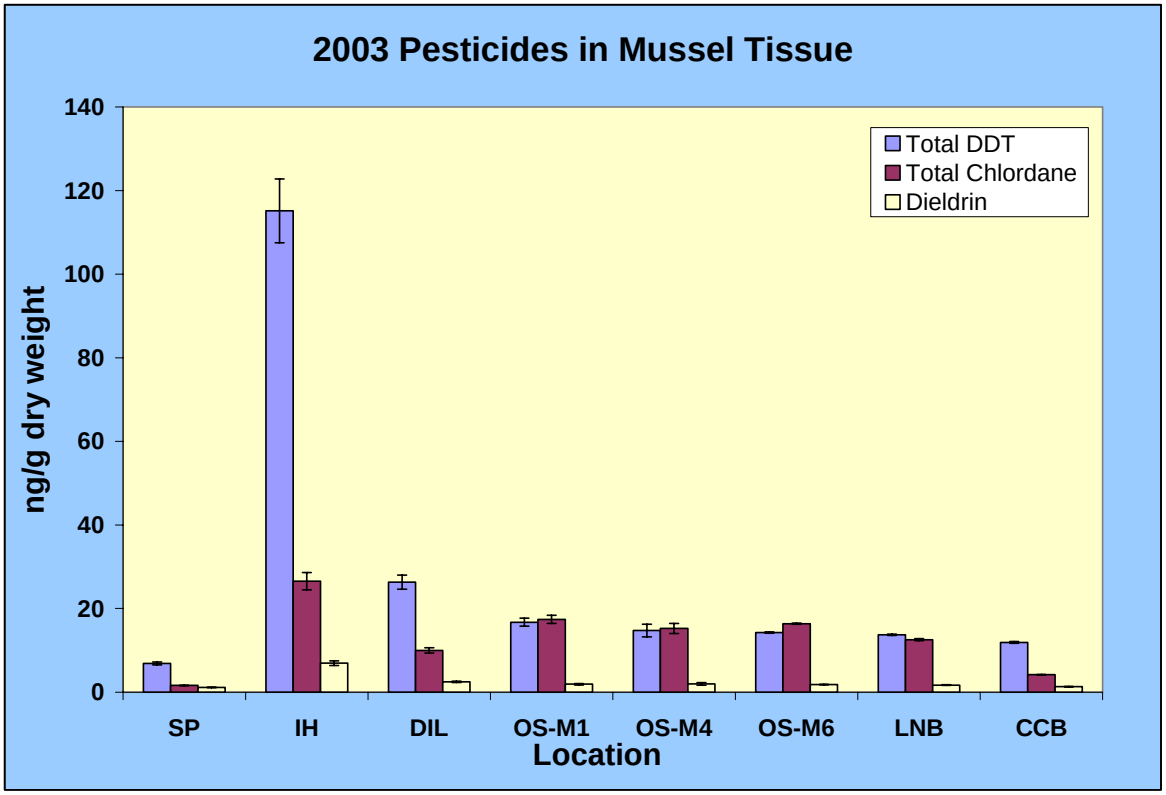


Figure 3-32. Pesticides in 2003 Pre-deployed Mussels and Five Deployment Locations.

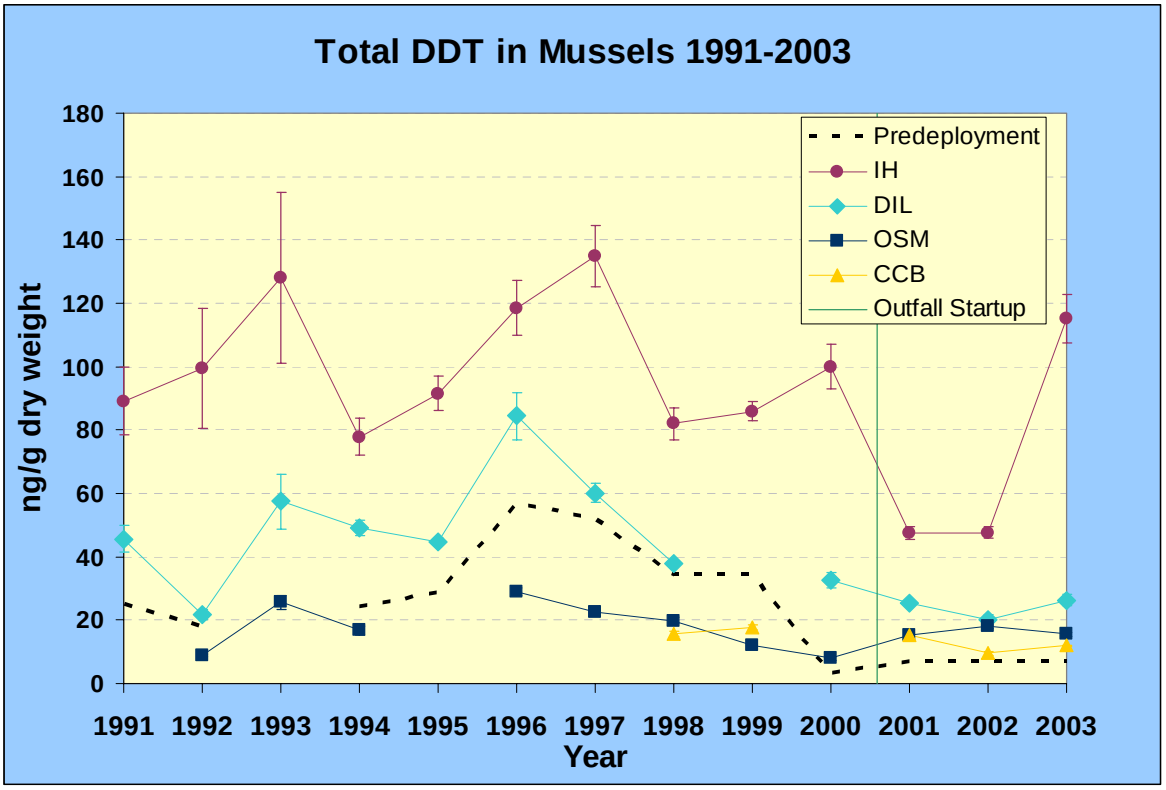


Figure 3-33. Total DDT in Pre-deployed and Deployed Mussels from 1991-2003.

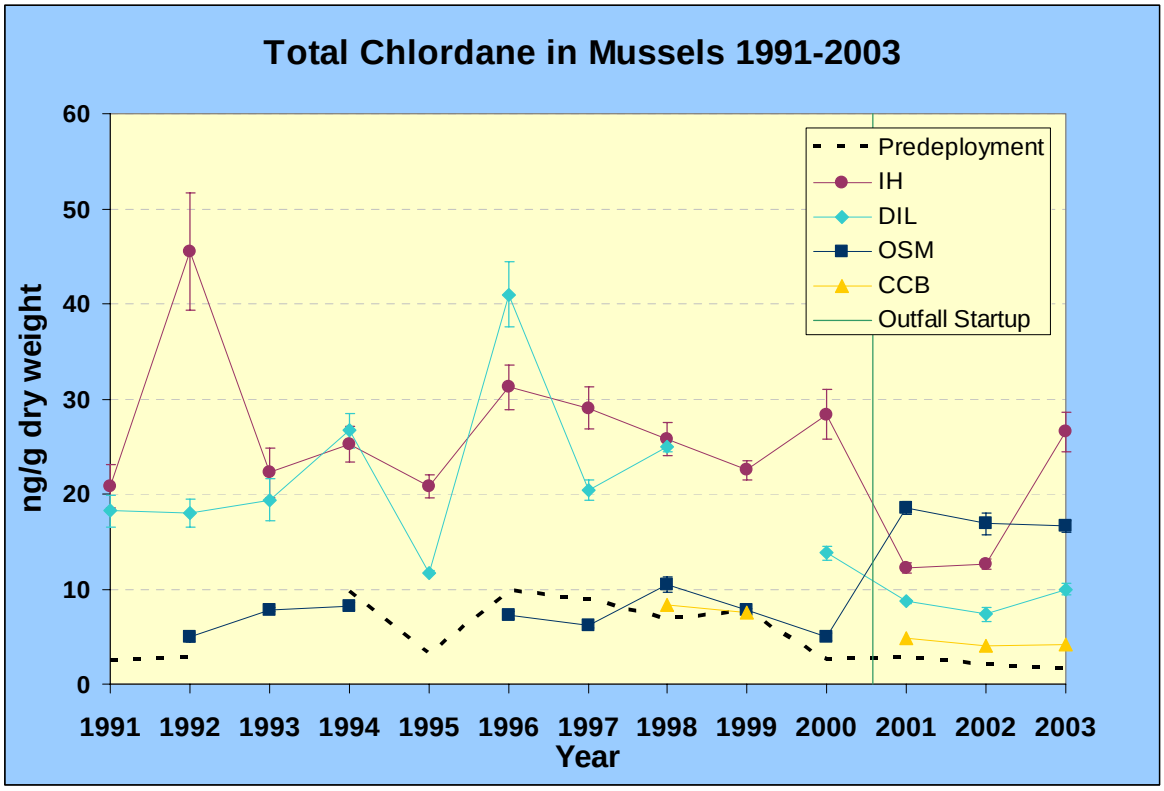


Figure 3-34. Total Chlordane in Pre-deployed and Deployed Mussels from 1991-2003.

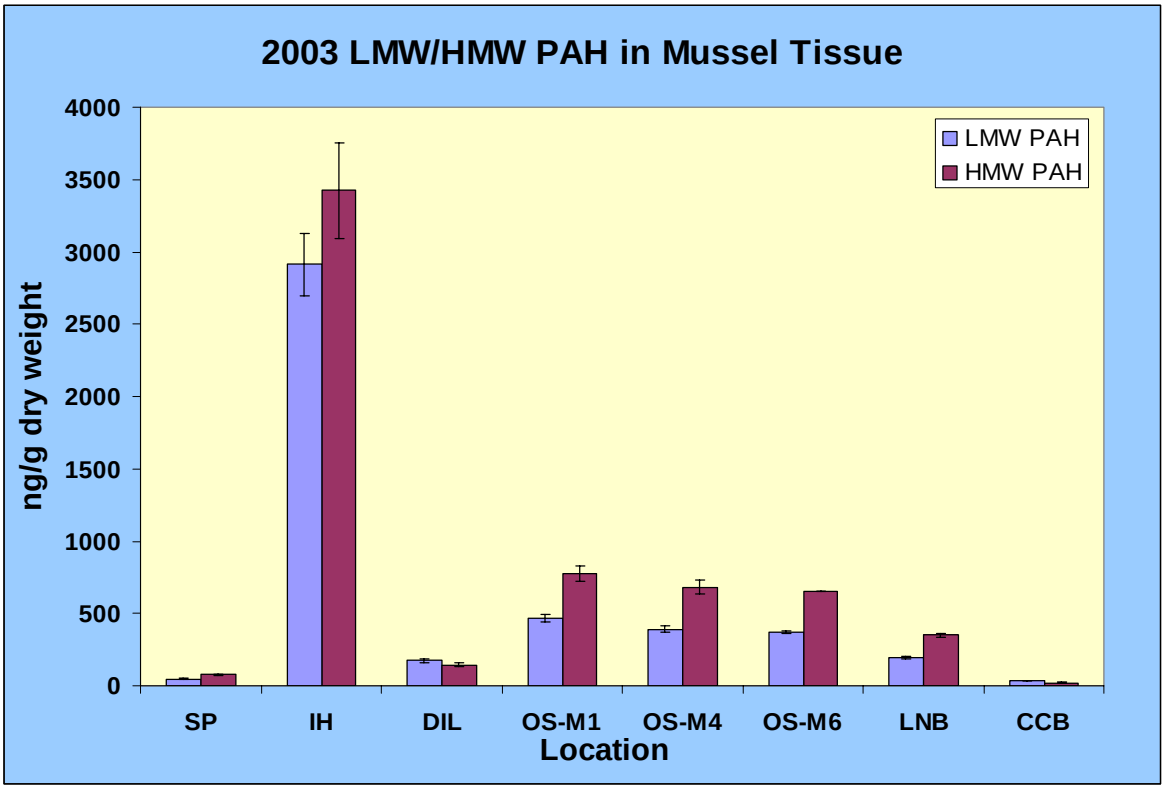
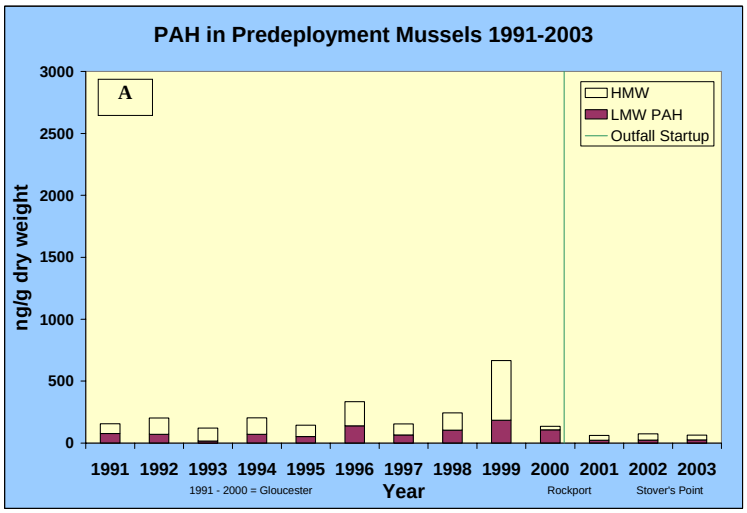
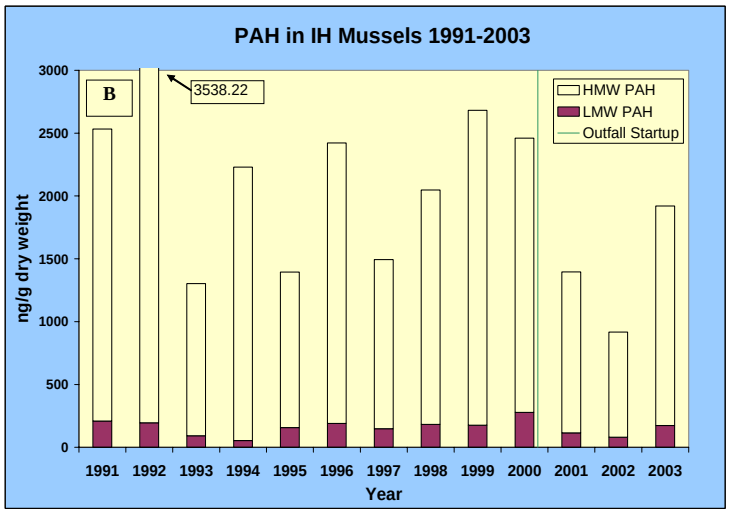
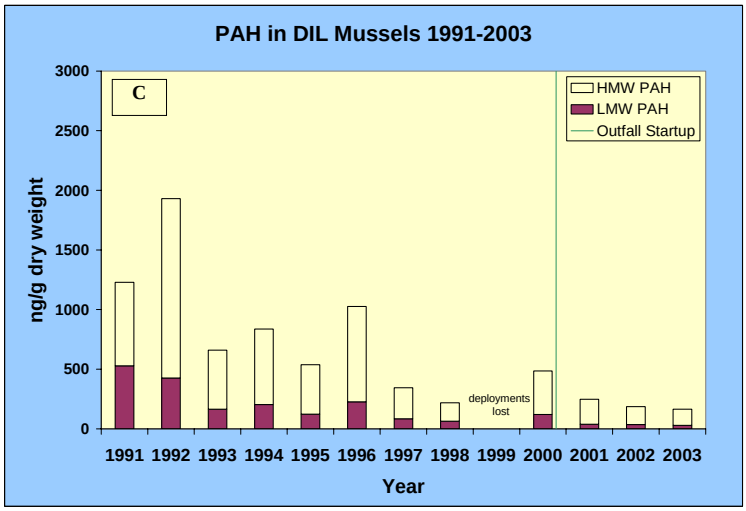
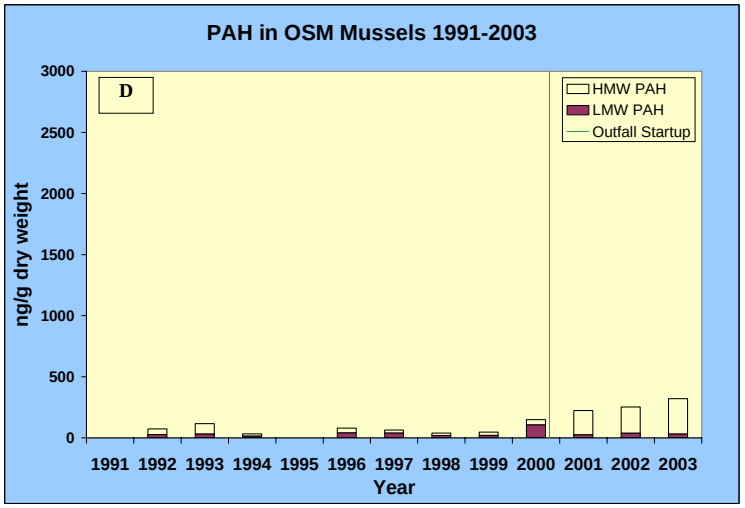


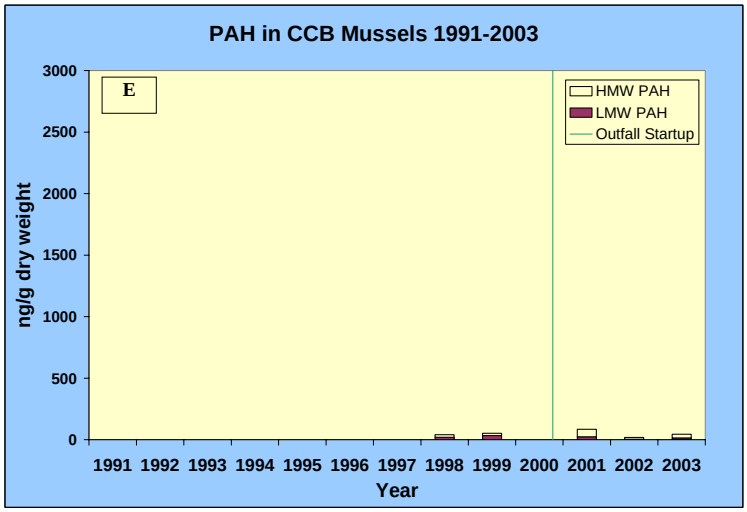
Figure 3-35. Total Low and High Molecular Weight PAHs in 2003 Pre-deployed Mussels and Five Deployment Locations Using the Total PAH List.











(A = Stover's Point; B = IH; C = DIL; D = OSM; E = CCB)

Figure 3-36. Total PAHs (Using the "Historical NOAA List") in Pre-deployed and Deployed Mussels from 1991-2003.

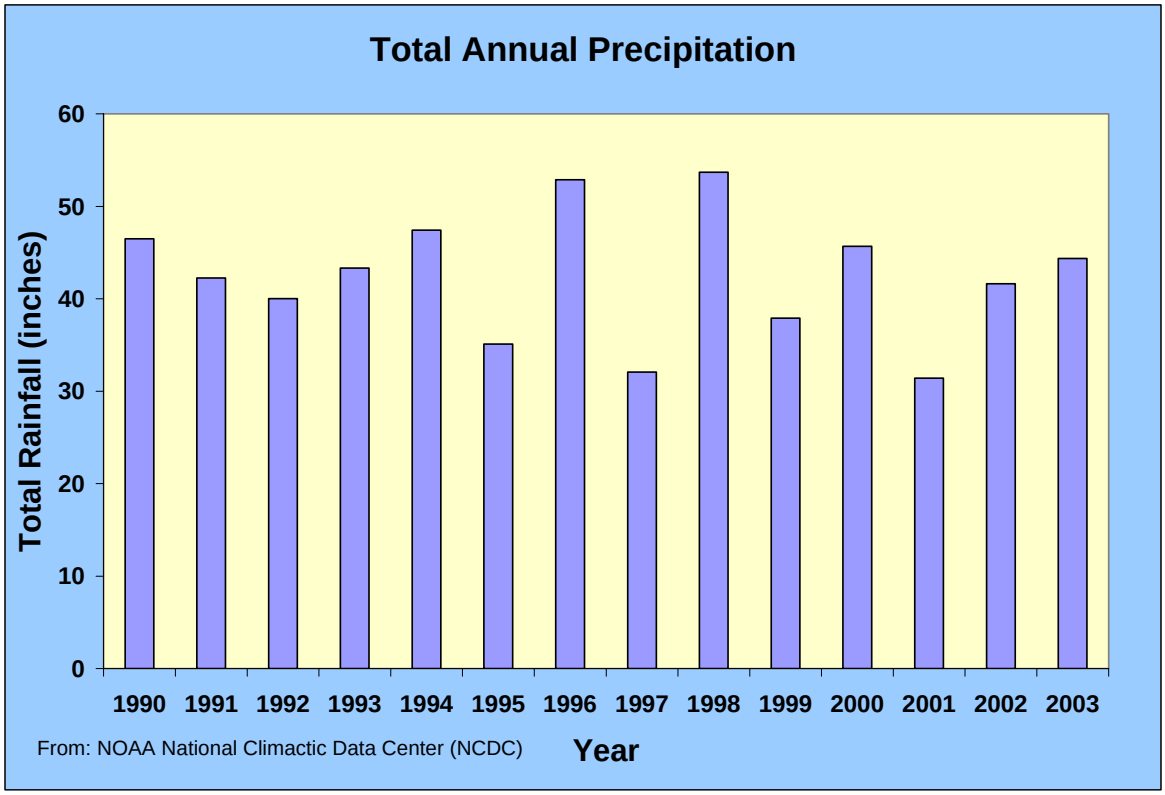


Figure 3-37. Total Annual Precipitation for Boston, MA.

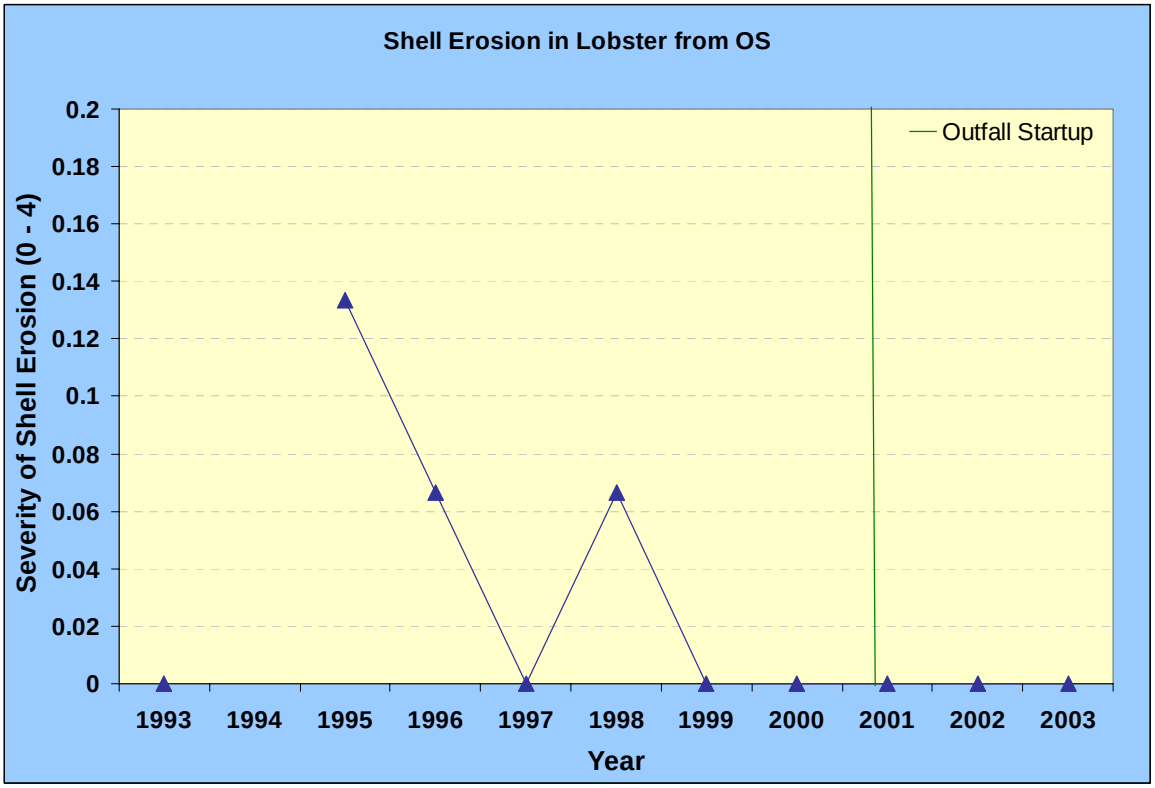


Figure 3-38. The Severity of Shell Erosion in Lobster from OS.

4.0 CONCLUSIONS

4.1 Winter Flounder

The 2003 Flounder Survey provided samples from five locations (DIF, NB, BS, OS, and ECCB) and was conducted in a manner consistent with previous surveys. Catch per unit effort at OS was the highest of any year since monitoring began in 1991. The age corrected hydropic vacuolation prevalence suggested that there has been a steady system-wide reduction in the contaminant-associated pathology in winter flounder in the past decade. There was none of the high neoplasm prevalence characteristic of fish from Deer Island Flats in the mid- to late-1980s. While it appears that the prevalence of ulcers in the western portion of Massachusetts Bay, has increased markedly, beginning in 2001 (Moore, 2003) given the general uncertainty about the specific etiology of skin lesions it is not possible to determine at this time the cause of the observed ulceration in winter flounder.

The levels of most tissue contaminant concentrations were similar to or lower than those measured in previous years, and the decreases in many contaminant levels appeared to occur area-wide. There appeared to be a slight increase in concentration for a number of organic contaminants and mercury in 2003 at OS compared to the last two post discharge years; this may be due to the relatively wet winter and spring in 2003, which may have delivered precipitation and runoff laden with high levels of organic contaminants to Boston Harbor. This theory is also supported by the dry conditions experienced in the region in the previous two post-baseline years. However, overall, the variability in concentrations between stations was much less than that observed prior to 1999 and current post discharge concentrations are within the range of values measured in the baseline years (1990 – 2000). In addition, post-discharge concentrations were generally not significantly different than pre-discharge concentrations with the exception of total PCBs in livers. All fillet chemical concentrations were below both FDA and MWRA Caution and Warning Threshold Levels.

4.2 Lobster

External condition continued to be good in lobster collected from all three stations in 2003. Most lobster tissue contaminant concentrations in 2003 were similar to or lower than those measured in previous baseline years, with concentrations of several organic contaminants steadily decreasing since the late 1990s. The exception to this was total PCB concentrations at OS in 2003, which were anomalously high. Additional PCB analyses indicated that the high levels of PCBs were isolated to only one lobster in one of the composites from OS. While there is no clear reason for these anomalous PCB results, it could be related to the source of the lobster, which were purchased from a commercial lobsterman on site and its point of capture undetermined. In 2003, the variability in concentrations between stations was much less than that observed prior to 1997, except for the high total PCB value at OS. No contaminants in either lobster meat or hepatopancreas were found to be significantly increasing in the post discharge period (2001 – 2003) and a few organic contaminants were significantly lower at OS during the post-discharge period than during the pre-discharge period (1998 – 2000). Lobster edible tissue contaminant concentrations were below the FDA Action Limits and the Caution and Warning Threshold Levels set by MWRA.

4.3 Blue Mussel

The 2003 Mussel Bioaccumulation study involved deployment of caged mussels at three offshore locations (OSM, LNB, and CCB) and two near-shore locations (IH and DIL). In 2003, concentrations at IH, DIL, and CCB were generally within the historical range of values. However, total PAH, NOAA HMW-PAH, and total chlordane concentrations at OS were higher than the historical range. The increases in total PAH, NOAA HMW PAH, total chlordane, and a number of other organic compounds,

as well as lead and mercury, were statistically significant for the period immediately following outfall startup (2001 – 2003) compared to the pre-discharge period (1998 – 2000) and were related to the position of the mussels in the effluent plume. Values for all of these contaminants were below FDA Action Limits and the MWRA Warning Threshold. Only total PAH exceeded the MWRA Caution Threshold Levels in 2003. This exceedance was expected based on the results of the evaluation of the 2001 mussel tissue contaminant threshold exceedance (Hunt *et al.* 2002).

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APPENDIX A

Summary of Measurement Program from 1992 - 2003

There have been a number of changes in fish and shellfish monitoring over the past 12 years of monitoring. The following table summarizes those changes.

Table A-1. Summary of Changes in Fish and Shellfish Monitoring 1992 – 2003.

Organism	Laboratory		Chemistry Composites per Station	Organisms per Composite
Flounder	**Chemistry**	**Histology/Physiology[a]**		
1992	Battelle	M. Moore	4	1
1993	Battelle	M. Moore	9-10	1
1994	Battelle	M. Moore	3	1
1995	ADL/ENVITEC	M. Moore	3	5
1996	ADL/ENVITEC	M. Moore	3	5
1997	ADL/ENVITEC	M. Moore	3	5
1998	Battelle	M. Moore	3	5
1999	Battelle	M. Moore	3	5
2000	Battelle	M. Moore	3	5
2001	Battelle	R. Hillman/M. Moore	3	5
2002	Battelle	M. Moore	3	5
2003	Battelle	M. Moore	3	5
Lobster	**Chemistry**	**Physiology**		
1992	Battelle	Battelle	3	1
1993	Battelle	Battelle	2–10	1
1994	Battelle	Battelle	2–3	5
1995	ADL/ENVITEC	ENSR	3	5
1996	ADL/ENVITEC	ENSR	3	5
1997	ADL/ENVITEC	ENSR	3	5
1998	Battelle	Battelle	3	5
1999	Battelle	Battelle	3	5
2000	Battelle	Battelle	3	5
2001	Battelle	Battelle	3	5
2002	Battelle	Battelle	3	5
2003	Battelle	Battelle	3	5
Mussel	**Chemistry**	**Biological Condition**		
1992	Aquatec	Aquatec	5-8	10
1993	Aquatec	Aquatec	3-8	10
1994	Aquatec	Aquatec	3-8	10
1995	ADL/ENVITEC	Aquatec	5	At least 200 g
1996	ADL/ENVITEC	Aquatec	5	At least 200 g
1997	ADL/ENVITEC	Aquatec	5	At least 200 g
1998	Battelle	Battelle	5-8	5
1999	Battelle	Battelle	5-8	5
2000	Battelle	Battelle	5-8	5-10
2001	Battelle	Battelle	5-8	5-10
2002	Battelle	Battelle	5-8	5-10
2003	Battelle	Battelle	5-8	5-10

[a]Individual livers/fish

APPENDIX B

Summary Tables of Lipid (% dry wt.), PCB/Pesticide, PAH and Metals Results for Individual Composites of Flounder, Lobster, and Mussels

Table B-1. 2003 Lipid Data - Individual Replicates.

Matrix	Station	Sample	Bottle	Parameter	Value	Val Qual	Unit Code
Flounder Fillet	DIF	FF03110C1	T1834	LIPID	2.5		PCTDRYWT
Flounder Fillet	DIF	FF03110C2	T1835	LIPID	1.7		PCTDRYWT
Flounder Fillet	DIF	FF03110C3	T1836	LIPID	2.1		PCTDRYWT
Flounder Fillet	OS	FF03140C1	T1840	LIPID	2.7		PCTDRYWT
Flounder Fillet	OS	FF03140C2	T1841	LIPID	2.5		PCTDRYWT
Flounder Fillet	OS	FF03140C3	T1842	LIPID	2		PCTDRYWT
Flounder Fillet	ECCB	FF03150C1	T1846	LIPID	2.4		PCTDRYWT
Flounder Fillet	ECCB	FF03150C2	T1847	LIPID	1.8		PCTDRYWT
Flounder Fillet	ECCB	FF03150C3	T1848	LIPID	1.8		PCTDRYWT
Flounder Liver	DIF	FF03110C1	T1831	LIPID	35.2		PCTDRYWT
Flounder Liver	DIF	FF03110C2	T1832	LIPID	29.4		PCTDRYWT
Flounder Liver	DIF	FF03110C3	T1833	LIPID	31.9		PCTDRYWT
Flounder Liver	OS	FF03140C1	T1837	LIPID	29.3		PCTDRYWT
Flounder Liver	OS	FF03140C2	T1838	LIPID	28.7		PCTDRYWT
Flounder Liver	OS	FF03140C3	T1839	LIPID	26.9		PCTDRYWT
Flounder Liver	ECCB	FF03150C1	T1843	LIPID	27.9		PCTDRYWT
Flounder Liver	ECCB	FF03150C2	T1844	LIPID	29.6		PCTDRYWT
Flounder Liver	ECCB	FF03150C3	T1845	LIPID	25.5		PCTDRYWT
Lobster Hepatopancreas	DIF	FL0311C1	T6509	LIPID	44.04		PCTDRYWT
Lobster Hepatopancreas	DIF	FL0311C2	T6510	LIPID	42.1		PCTDRYWT
Lobster Hepatopancreas	DIF	FL0311C3	T6511	LIPID	42.9		PCTDRYWT
Lobster Hepatopancreas	OS	FL0314C1	T7054	LIPID	55.35		PCTDRYWT
Lobster Hepatopancreas	OS	FL0314C2	T7055	LIPID	63.69		PCTDRYWT
Lobster Hepatopancreas	OS	FL0314C3	T7056	LIPID	49.26		PCTDRYWT
Lobster Hepatopancreas	ECCB	FL0315C1	T7550	LIPID	52.5		PCTDRYWT
Lobster Hepatopancreas	ECCB	FL0315C2	T7551	LIPID	60.17		PCTDRYWT
Lobster Hepatopancreas	ECCB	FL0315C3	T7552	LIPID	50.82		PCTDRYWT
Lobster Meat	DIF	FL0311C1	T6506	LIPID	4.41		PCTDRYWT
Lobster Meat	DIF	FL0311C2	T6507	LIPID	4.53		PCTDRYWT
Lobster Meat	DIF	FL0311C3	T6508	LIPID	4.26		PCTDRYWT
Lobster Meat	OS	FL0314C1	T7051	LIPID	4.08		PCTDRYWT
Lobster Meat	OS	FL0314C2	T7052	LIPID	3.88		PCTDRYWT
Lobster Meat	OS	FL0314C3	T7053	LIPID	5.05		PCTDRYWT
Lobster Meat	ECCB	FL0315C1	T7547	LIPID	4.14		PCTDRYWT
Lobster Meat	ECCB	FL0315C2	T7548	LIPID	4.03		PCTDRYWT
Lobster Meat	ECCB	FL0315C3	T7549	LIPID	4.29		PCTDRYWT
Mussel Tissue	DIL	FM031T6971	T6971	LIPID	6.6		PCTDRYWT
Mussel Tissue	DIL	FM031T6972	T6972	LIPID	7.6		PCTDRYWT
Mussel Tissue	DIL	FM031T6973	T6973	LIPID	7.8		PCTDRYWT
Mussel Tissue	DIL	FM031T6974	T6974	LIPID	6.8		PCTDRYWT
Mussel Tissue	DIL	FM031T6975	T6975	LIPID	8.8		PCTDRYWT
Mussel Tissue	LNB	FM031T6984	T6984	LIPID	9.6		PCTDRYWT
Mussel Tissue	LNB	FM031T6985	T6985	LIPID	10.4		PCTDRYWT
Mussel Tissue	LNB	FM031T6986	T6986	LIPID	10.7		PCTDRYWT
Mussel Tissue	LNB	FM031T6987	T6987	LIPID	9.8		PCTDRYWT
Mussel Tissue	CCB	FM031T6988	T6988	LIPID	10.7		PCTDRYWT

Table B-1. 2003 Lipid Data - Individual Replicates.
(Continued)

Matrix	Station	Sample	Bottle	Parameter	Value	Val Qual	Unit Code
Mussel Tissue	CCB	FM031T6989	T6989	LIPID	10.8		PCTDRYWT
Mussel Tissue	CCB	FM031T6990	T6990	LIPID	10.0		PCTDRYWT
Mussel Tissue	CCB	FM031T6991	T6991	LIPID	9.9		PCTDRYWT
Mussel Tissue	IH	FM031T6966	T6966	LIPID	7.2		PCTDRYWT
Mussel Tissue	IH	FM031T6967	T6967	LIPID	5.8		PCTDRYWT
Mussel Tissue	IH	FM031T6968	T6968	LIPID	6.7		PCTDRYWT
Mussel Tissue	IH	FM031T6969	T6969	LIPID	7.7		PCTDRYWT
Mussel Tissue	IH	FM031T6970	T6970	LIPID	5.8		PCTDRYWT
Mussel Tissue	OS-M1	FM031T6976	T6976	LIPID	8.1		PCTDRYWT
Mussel Tissue	OS-M1	FM031T6977	T6977	LIPID	9.6		PCTDRYWT
Mussel Tissue	OS-M1	FM031T6978	T6978	LIPID	9.5		PCTDRYWT
Mussel Tissue	OS-M1	FM031T6979	T6979	LIPID	6.9		PCTDRYWT
Mussel Tissue	OS-M4	FM031T6980	T6980	LIPID	9.5		PCTDRYWT
Mussel Tissue	OS-M4	FM031T6981	T6981	LIPID	8.6		PCTDRYWT
Mussel Tissue	OS-M6	FM031T6982	T6982	LIPID	8.3		PCTDRYWT
Mussel Tissue	OS-M6	FM031T6983	T6983	LIPID	9.6		PCTDRYWT
Mussel Tissue	SP	FM031T5665	T5665	LIPID	9.0		PCTDRYWT
Mussel Tissue	SP	FM031T5666	T5666	LIPID	10.3		PCTDRYWT
Mussel Tissue	SP	FM031T5667	T5667	LIPID	9.7		PCTDRYWT
Mussel Tissue	SP	FM031T5668	T5668	LIPID	9.6		PCTDRYWT
Mussel Tissue	SP	FM031T5669	T5669	LIPID	8.6		PCTDRYWT

Table B-2. 2003 Percent Dry Weight Data - Individual Replicates.

Matrix	Station	Sample	Bottle	Parameter	Value	Val Qual	Unit Code
Flounder Fillet	DIF	FF03110C1	T1834	PCTDRYWT	16.98		PCT
Flounder Fillet	DIF	FF03110C2	T1835	PCTDRYWT	17.65		PCT
Flounder Fillet	DIF	FF03110C3	T1836	PCTDRYWT	17.06		PCT
Flounder Fillet	OS	FF03140C1	T1840	PCTDRYWT	15.63		PCT
Flounder Fillet	OS	FF03140C2	T1841	PCTDRYWT	15.62		PCT
Flounder Fillet	OS	FF03140C3	T1842	PCTDRYWT	16.06		PCT
Flounder Fillet	ECCB	FF03150C1	T1846	PCTDRYWT	16.7		PCT
Flounder Fillet	ECCB	FF03150C2	T1847	PCTDRYWT	17.2		PCT
Flounder Fillet	ECCB	FF03150C3	T1848	PCTDRYWT	16.56		PCT
Flounder Liver	DIF	FF03110C1	T1831	PCTDRYWT	22.06		PCT
Flounder Liver	DIF	FF03110C2	T1832	PCTDRYWT	22.37		PCT
Flounder Liver	DIF	FF03110C3	T1833	PCTDRYWT	22.94		PCT
Flounder Liver	OS	FF03140C1	T1837	PCTDRYWT	23.45		PCT
Flounder Liver	OS	FF03140C2	T1838	PCTDRYWT	22.17		PCT
Flounder Liver	OS	FF03140C3	T1839	PCTDRYWT	21.01		PCT
Flounder Liver	ECCB	FF03150C1	T1843	PCTDRYWT	21.91		PCT
Flounder Liver	ECCB	FF03150C2	T1844	PCTDRYWT	21.55		PCT
Flounder Liver	ECCB	FF03150C3	T1845	PCTDRYWT	22.84		PCT
Lobster Hepatopancreas	DIF	FL0311C1	T6509	PCTDRYWT	29.86		PCT
Lobster Hepatopancreas	DIF	FL0311C2	T6510	PCTDRYWT	29.82		PCT
Lobster Hepatopancreas	DIF	FL0311C3	T6511	PCTDRYWT	32.4		PCT
Lobster Hepatopancreas	OS	FL0314C1	T7054	PCTDRYWT	30.31		PCT
Lobster Hepatopancreas	OS	FL0314C2	T7055	PCTDRYWT	37.58		PCT
Lobster Hepatopancreas	OS	FL0314C3	T7056	PCTDRYWT	29.38		PCT
Lobster Hepatopancreas	ECCB	FL0315C1	T7550	PCTDRYWT	30.82		PCT
Lobster Hepatopancreas	ECCB	FL0315C2	T7551	PCTDRYWT	27.54		PCT
Lobster Hepatopancreas	ECCB	FL0315C3	T7552	PCTDRYWT	26.68		PCT
Lobster Meat	DIF	FL0311C1	T6506	PCTDRYWT	14.83		PCT
Lobster Meat	DIF	FL0311C2	T6507	PCTDRYWT	14.49		PCT
Lobster Meat	DIF	FL0311C3	T6508	PCTDRYWT	17.41		PCT
Lobster Meat	OS	FL0314C1	T7051	PCTDRYWT	12.37		PCT
Lobster Meat	OS	FL0314C2	T7052	PCTDRYWT	14.21		PCT
Lobster Meat	OS	FL0314C3	T7053	PCTDRYWT	12.59		PCT
Lobster Meat	ECCB	FL0315C1	T7547	PCTDRYWT	12.63		PCT
Lobster Meat	ECCB	FL0315C2	T7548	PCTDRYWT	12.38		PCT
Lobster Meat	ECCB	FL0315C3	T7549	PCTDRYWT	12.07		PCT
Mussel Tissue	SP	FM031T5665	T5665	PCTDRYWT	12.8		PCT
Mussel Tissue	SP	FM031T5666	T5666	PCTDRYWT	13.7		PCT
Mussel Tissue	SP	FM031T5667	T5667	PCTDRYWT	12.4		PCT
Mussel Tissue	SP	FM031T5668	T5668	PCTDRYWT	13.4		PCT
Mussel Tissue	SP	FM031T5669	T5669	PCTDRYWT	14.7		PCT

Table B-2. 2003 Percent Dry Weight Data - Individual Replicates. (Continued)

Matrix	Station	Sample	Bottle	Parameter	Value	Val Qual	Unit Code
Mussel Tissue	DIL	FM031T6971	T6971	PCTDRYWT	10.0		PCT
Mussel Tissue	DIL	FM031T6972	T6972	PCTDRYWT	9.8		PCT
Mussel Tissue	DIL	FM031T6973	T6973	PCTDRYWT	11.3		PCT
Mussel Tissue	DIL	FM031T6974	T6974	PCTDRYWT	12.6		PCT
Mussel Tissue	DIL	FM031T6975	T6975	PCTDRYWT	15.0		PCT
Mussel Tissue	LNB	FM031T6984	T6984	PCTDRYWT	16.2		PCT
Mussel Tissue	LNB	FM031T6985	T6985	PCTDRYWT	17.1		PCT
Mussel Tissue	LNB	FM031T6986	T6986	PCTDRYWT	17.5		PCT
Mussel Tissue	LNB	FM031T6987	T6987	PCTDRYWT	17.2		PCT
Mussel Tissue	CCB	FM031T6988	T6988	PCTDRYWT	17.5		PCT
Mussel Tissue	CCB	FM031T6989	T6989	PCTDRYWT	17.9		PCT
Mussel Tissue	CCB	FM031T6990	T6990	PCTDRYWT	17.4		PCT
Mussel Tissue	CCB	FM031T6991	T6991	PCTDRYWT	18.1		PCT
Mussel Tissue	IH	FM031T6966	T6966	PCTDRYWT	8.0		PCT
Mussel Tissue	IH	FM031T6967	T6967	PCTDRYWT	7.4		PCT
Mussel Tissue	IH	FM031T6968	T6968	PCTDRYWT	8.2		PCT
Mussel Tissue	IH	FM031T6969	T6969	PCTDRYWT	8.9		PCT
Mussel Tissue	IH	FM031T6970	T6970	PCTDRYWT	7.4		PCT
Mussel Tissue	OS-M1	FM031T6976	T6976	PCTDRYWT	12.6		PCT
Mussel Tissue	OS-M1	FM031T6977	T6977	PCTDRYWT	14.4		PCT
Mussel Tissue	OS-M1	FM031T6978	T6978	PCTDRYWT	11.7		PCT
Mussel Tissue	OS-M1	FM031T6979	T6979	PCTDRYWT	12.1		PCT
Mussel Tissue	OS-M4	FM031T6980	T6980	PCTDRYWT	13.3		PCT
Mussel Tissue	OS-M4	FM031T6981	T6981	PCTDRYWT	12.7		PCT
Mussel Tissue	OS-M6	FM031T6982	T6982	PCTDRYWT	14.2		PCT
Mussel Tissue	OS-M6	FM031T6983	T6983	PCTDRYWT	13.9		PCT

Table B-3. 2003 Flounder Fillet Data - Individual Replicates.

Parameter	DIF	NB	BS	OS	ECCB
Mercury	0.367	NA	NA	0.77	0.335
Mercury	0.422	NA	NA	0.529	0.285
Mercury	0.387	NA	NA	0.693	0.214
Total DDT	29.88153	NA	NA	11.47484	6.84336
Total DDT	33.07334	NA	NA	11.40723	3.95791
Total DDT	27.97354	NA	NA	17.37046	12.83167
Total PCB	327.3992	NA	NA	170.7964	48.33379
Total PCB	386.3617	NA	NA	173.7117	27.19655
Total PCB	322.6438	NA	NA	224.322	73.53222
Total Chlordane	7.51789	NA	NA	2.39618	1.06309
Total Chlordane	12.14729	NA	NA	3.11304	0.97183
Total Chlordane	7.86659	NA	NA	4.32672	2.68737
Dieldrin	1.35631	NA	NA	0.69496	0.59828
Dieldrin	1.36723	NA	NA	0.60754	0.51359
Dieldrin	1.33422	NA	NA	0.75295	2.26556
Hexachlorobenzene	0.56458	NA	NA	0.51184	0.40441
Hexachlorobenzene	0.5384	NA	NA	0.45641	0.35066
Hexachlorobenzene	0.53634	NA	NA	0.46536	0.40549
Mirex	0.000	NA	NA	0.000	0.000
Mirex	0.000	NA	NA	0.000	0.000
Mirex	0.000	NA	NA	0.000	0.000
Aldrin	0.000	NA	NA	0.000	0.000
Aldrin	0.000	NA	NA	0.000	0.000
Aldrin	0.000	NA	NA	0.000	0.000
Endrin	0.000	NA	NA	0.000	0.000
Endrin	0.000	NA	NA	0.000	0.000
Endrin	0.000	NA	NA	0.000	0.000
Lindane	0.07046	NA	NA	0.07531	0.0572
Lindane	0.07538	NA	NA	0.07112	0.07115
Lindane	0.11451	NA	NA	0.0889	0.07144

Table B-4. 2003 Flounder Liver Data - Individual Replicates.

Parameter	DIF	NB	BS	OS	ECCB
Cadmium	1.33	NA	NA	3.62	2.6
Cadmium	1.62	NA	NA	1.78	1.86
Cadmium	1.35	NA	NA	2.77	11.3
Chromium	0.171	NA	NA	0.185	0.172
Chromium	0.189	NA	NA	0.103	0.0752
Chromium	0.106	NA	NA	0.116	0.47
Copper	60	NA	NA	154	78.1
Copper	40.7	NA	NA	130	39.3
Copper	32.5	NA	NA	123	85.8
Lead	3.41	NA	NA	3.01	4.27
Lead	2.9	NA	NA	4.93	1.67
Lead	2.54	NA	NA	7.29	5.73
Mercury	0.362	NA	NA	0.704	0.411
Mercury	0.504	NA	NA	0.616	0.309
Mercury	0.415	NA	NA	0.623	0.272
Nickel	0.835	NA	NA	0.621	0.862
Nickel	1.08	NA	NA	0.658	0.748
Nickel	0.544	NA	NA	0.716	0.632
Silver	1.73	NA	NA	21.2	5.84
Silver	2.48	NA	NA	11.9	2.15
Silver	1.36	NA	NA	15.1	10.5
Zinc	102	NA	NA	118	126
Zinc	94.6	NA	NA	128	115
Zinc	97.6	NA	NA	104	121
Total DDT	361.5517	NA	NA	146.8944	42.81455
Total DDT	247.4313	NA	NA	134.8984	38.99318
Total DDT	318.7988	NA	NA	198.3238	96.63435
Total PCB	5,218.13	NA	NA	2,090.90	318.5522
Total PCB	3,290.31	NA	NA	2,508.42	269.6762
Total PCB	4,878.90	NA	NA	3,077.37	527.3965
Total PAH	55.03272	NA	NA	14.84975	35.7404
Total PAH	46.36861	NA	NA	41.47184	49.2752
Total PAH	61.0763	NA	NA	7.52004	18.24608
Total Chlordane	87.42012	NA	NA	24.01396	6.68236
Total Chlordane	79.68418	NA	NA	29.8349	9.3877
Total Chlordane	87.34062	NA	NA	35.18899	15.23008
Dieldrin	14.52942	NA	NA	5.7246	3.32454
Dieldrin	8.96423	NA	NA	5.05654	4.52515
Dieldrin	11.2595	NA	NA	5.99202	11.43736
Hexachlorobenzene	5.40321	NA	NA	4.48629	2.06461
Hexachlorobenzene	3.22459	NA	NA	3.09393	2.2157
Hexachlorobenzene	4.3003	NA	NA	3.86266	2.35264
Mirex	0.00	NA	NA	0.00	0.00
Mirex	0.00	NA	NA	0.00	0.00
Mirex	0.00	NA	NA	0.00	0.00

Table B-4. 2003 Flounder Liver Data - Individual Replicates. (Continued)

Parameter	DIF	NB	BS	OS	ECCB
Alrin	0.00	NA	NA	0.00	0.00
Alrin	0.00	NA	NA	0.00	0.00
Alrin	0.00	NA	NA	0.00	0.00
Endrin	0.00	NA	NA	0.00	0.00
Endrin	0.00	NA	NA	0.00	0.00
Endrin	0.00	NA	NA	0.00	0.00
Lindane	0.36861	NA	NA	0.34262	0.30587
Lindane	0.43063	NA	NA	0.21165	0.25521
Lindane	0.30349	NA	NA	0.22033	0.1771

Table B-5. 2003 Lobster Meat Data - Individual Composites.

Parameter	DIF	OS	ECCB
Mercury	1.1492	0.6806	0.6021
Mercury	0.9887	1.0939	0.4345
Mercury	1.1277	0.7707	0.5467
Total DDT	12.64	5.51	4.36
Total DDT	13.24	4.39	8.08
Total DDT	12.67	6.96	4.76
Total PCB	151.62	66.85	37.94
Total PCB	136.33	56.59	37.93
Total PCB	158.05	574.24	31.53
Total Chlordane	2.17	1.35	0.87
Total Chlordane	2.19	1.19	0.95
Total Chlordane	2.41	0.99	1.13
Aldrin	0.000	0.000	0.000
Aldrin	0.000	0.000	0.000
Aldrin	0.000	0.000	0.000
Dieldrin	3.67	3.25	2.67
Dieldrin	3.4	3.37	2.58
Dieldrin	3.49	3.39	2.69
Endrin	0.000	0.000	0.000
Endrin	0.000	0.000	0.000
Endrin	0.000	0.000	0.000
Hexachlorobenzene	0.32	0.31	0.3
Hexachlorobenzene	0.37	0.25	0.29
Hexachlorobenzene	0.27	0.32	0.32
Mirex	0.000	0.000	0.000
Mirex	0.000	0.000	0.000
Mirex	0.000	0.000	0.000
Lindane	3.7	4.26	4.38
Lindane	3.83	4.13	2.8
Lindane	3.75	3.63	2.85

Table B-6. 2003 Lobster Hepatopancreas Data - Individual Composites.

Parameter	DIF	OS	ECCB
Lead	0.299	0.409	0.312
Lead	0.365	0.209	0.145
Lead	0.222	0.498	0.172
Mercury	0.351	0.3196	0.199
Mercury	0.3251	0.364	0.2044
Mercury	0.4435	0.3275	0.2124
Cadmium	8.92	12.36402	12.99683
Cadmium	15.64069	14.50523	10.25664
Cadmium	9.75151	9.56125	9.04008
Chromium	0.369	0.33035	0.36961
Chromium	0.30374	0.27159	0.34815
Chromium	0.29031	0.3785	0.31269
Copper	600	828.3853	390.3015
Copper	407.8807	516.6799	351.0248
Copper	670.907	720.3976	319.2671
Nickel	0.99	1.07034	1.34879
Nickel	0.81121	0.60122	1.19239
Nickel	0.83947	1.49531	0.89687
Silver	28.8	29.16659	18.7511
Silver	19.91856	23.96845	15.90236
Silver	33.26907	25.71498	13.42561
Zinc	91.9	111.2509	75.86234
Zinc	62.7133	92.2328	83.22341
Zinc	77.03491	103.4576	75.2878
Total DDT	1,042.42	362.96	274.16
Total DDT	919.82	368.24	388.71
Total DDT	1,110.68	466.12	349.76
Total PCB	10,146.99	3,492.05	1,841
Total PCB	7,817.46	2,912	1,551.39
Total PCB	12,443.12	31,942.69	1,803.30
Total PAH	4,430.61	2,740.34	738.96
Total PAH	2,729.72	2,785.91	696.69
Total PAH	2,964.46	2,652.23	929.96
Total Chlordane	78.12	45.37	19.64
Total Chlordane	62.09	44.35	19.75
Total Chlordane	71.71	12.8	26.92
Aldrin	0.000	0.000	0.000
Aldrin	0.000	0.000	0.000
Aldrin	0.000	0.000	0.000
Dieldrin	49.74	26.24	20.26
Dieldrin	37.58	25.94	18.73
Dieldrin	50.2	32.6	23.05
Endrin	0.000	0.000	0.000
Endrin	0.000	0.000	0.000
Endrin	0.000	0.000	0.000

Table B-6. 2003 Lobster Hepatopancreas Data - Individual Composites. (Continued)

Parameter	DIF	OS	ECCB
Hexachlorobenzene	5.51	6.11	4.13
Hexachlorobenzene	5.63	6.55	4.53
Hexachlorobenzene	4.79	1.82	5.11
Mirex	0.000	0.000	0.000
Mirex	0.000	0.000	0.000
Mirex	0.000	0.000	0.000
Lindane	3.03	2.49	3.11
Lindane	2.44	3.18	2.19
Lindane	2.93	0.55	2.33

Table B-7. 2003 Mussel Data - Individual Replicates.

Parameter	IH	DIL	OS-M1	OS-M4	OS-M6	LNB	CCB	SP
Lead	11.1	2.47	2.01	1.8	1.72	1.28	1.51	1.6
Lead	8.2	2.6	1.68	1.58	1.85	1.82	1.54	1.75
Lead	9.12	2.7	1.74	NA	NA	1.31	1.34	1.67
Lead	8.95	2.52	1.43	NA	NA	1.44	1.41	1.63
Lead	8.19	2.64	NA	NA	NA	NA	NA	1.65
Mercury	0.1645	0.12	0.1333	0.1385	0.127	0.1053	0.1121	0.1185
Mercury	0.1456	0.1266	0.1286	0.1259	0.1401	0.1233	0.1214	0.1142
Mercury	0.175	0.1315	0.1388	NA	NA	0.107	0.1161	0.1186
Mercury	0.1514	0.1353	0.1239	NA	NA	0.114	0.1106	0.1212
Mercury	0.1254	0.1366	NA	NA	NA	NA	NA	0.1188
Total PCB	552.3297	165.16	70.1477	59.4598	56.2203	62.01815	40.1503	15.80928
Total PCB	427.7678	181.502	76.1036	57.7199	59.4845	62.5321	41.4319	14.67007
Total PCB	468.9602	184.059	76.128	NA	NA	61.00997	41.4535	16.78356
Total PCB	565.9135	205.869	66.2279	NA	NA	62.17666	41.0141	15.45122
Total PCB	406.515	245.877	NA	NA	NA	NA	NA	13.37792
Total DDT	133.1491	23.2266	15.0746	16.2429	14.3988	13.86162	11.456	6.54752
Total DDT	103.1211	24.7254	18.8416	13.2540	14.1188	13.82566	12.3578	7.14674
Total DDT	109.1933	24.4399	17.8171	NA	NA	13.98124	11.7124	7.4187
Total DDT	133.4151	26.6134	15.266	NA	NA	13.25087	12.052	7.55988
Total DDT	96.80164	32.6595	NA	NA	NA	NA	NA	5.67508
Total Chlordane	30.56331	8.64826	16.237	16.4537	16.2220	12.62159	4.00193	1.59187
Total Chlordane	22.51759	9.12025	18.8840	14.0208	16.5137	13.22251	4.27339	1.63489
Total Chlordane	26.8824	9.60427	19.3011	NA	NA	12.29382	4.10253	1.67599
Total Chlordane	31.56968	10.2238	15.2929	NA	NA	12.11744	4.31914	1.83588
Total Chlordane	21.25852	12.3743	NA	NA	NA	NA	NA	1.33597
NOAA_LMW_PAH	218.81	26.29	35.28	31.63	29.86	22.44	11.41	24.27
NOAA_LMW_PAH	149.12	26.17	41.04	27.26	30.74	23.07	16	30.29
NOAA_LMW_PAH	162.1	26.1	37.64	NA	NA	23.73	13.5	25.12
NOAA_LMW_PAH	195.92	32.46	29.33	NA	NA	23.29	13.23	27.19
NOAA_LMW_PAH	137.49	35.61	NA	NA	NA	NA	NA	21.36
NOAA_HMW_PAH	2,128.76	125.2	290.86	289.01	257.45	120.41	28.55	44.6
NOAA_HMW_PAH	1,586.10	125.01	357.62	252.78	250.12	134.18	31.15	42.47
NOAA_HMW_PAH	1,755.84	124.82	328.37	NA	NA	144.74	32.18	34.1
NOAA_HMW_PAH	1,897.48	138.41	278.3	NA	NA	136.63	30.21	33.21
NOAA_HMW_PAH	1,369.95	166.03	NA	NA	NA	NA	NA	40.29
Dieldrin	8.6258	2.12369	1.66039	2.26827	1.76807	1.71191	1.24581	1.14252
Dieldrin	6.55267	2.2937	2.38429	1.66007	1.88001	1.84425	1.48154	1.18616
Dieldrin	6.29131	2.43566	1.91232	NA	NA	1.6947	1.3566	1.15866
Dieldrin	7.71767	2.46475	1.62787	NA	NA	1.53435	1.28883	1.19722
Dieldrin	5.51565	2.94171	NA	NA	NA	NA	NA	0.94661
Hexachlorobenzene	0.89732	0.45714	0.39171	0.35525	0.26711	0.28908	0.26621	0.40409
Hexachlorobenzene	0.44277	0.44988	0.52221	0.22866	0.1902	0.37619	0.31484	0.79662
Hexachlorobenzene	1.03852	0.41352	0.41404	NA	NA	0.34174	0.30802	0.30933
Hexachlorobenzene	0.83316	0.33424	0.40507	NA	NA	0.31474	0.27465	3.32958
Hexachlorobenzene	0.7949	0.43798	NA	NA	NA	NA	NA	0.44875

Table B-7. 2003 Mussel Data - Individual Replicates.
(Continued)

Parameter	IH	DIL	OS-M1	OS-M2	OS-M5	LNB	CCB	SP
Aldrin	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aldrin	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aldrin	0.000	0.000	0.000	NA	NA	0.000	0.000	0.000
Aldrin	0.000	0.000	0.000	NA	NA	0.000	0.000	0.000
Aldrin	0.000	0.000	NA	NA	NA	NA	NA	0.000
Endrin	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Endrin	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Endrin	0.000	0.000	0.000	NA	NA	0.000	0.000	0.000
Endrin	0.000	0.000	0.000	NA	NA	0.000	0.000	0.000
Endrin	0.000	0.000	NA	NA	NA	NA	NA	0.000
Lindane	0.000	0.000	0.48352	0.51878	0.000	0.41647	0.42769	0.000
Lindane	0.000	0.000	0.63298	0.45732	0.000	0.61306	0.49954	0.000
Lindane	0.000	0.000	0.57965	NA	NA	0.48376	0.56694	0.000
Lindane	0.000	0.000	0.48276	NA	NA	0.64609	0.48286	0.000
Lindane	0.000	0.000	NA	NA	NA	NA	NA	0.000
Mirex	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mirex	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mirex	0.000	0.000	0.000	NA	NA	0.000	0.000	0.000
Mirex	0.40575	0.000	0.000	NA	NA	0.000	0.000	0.000
Mirex	0.32929	0.19545	NA	NA	NA	NA	NA	0.000
97/98 HMW-PAH	3,545.93	164.77	433.07	411.06	382.37	172.03	32.89	52.59
97/98 HMW-PAH	2,689.17	157.37	534.77	372.67	364.66	192.38	36.83	49.08
97/98 HMW-PAH	2,919.45	154.87	491.17	NA	NA	209.16	37.51	40.2
97/98 HMW-PAH	3,154.12	173.45	411.63	NA	NA	192.92	36.4	39.26
97/98 HMW-PAH	2,266.01	209.65	NA	NA	NA	NA	NA	48.41
97/98 LMW-PAH	4,352.04	144.65	692.89	728.56	654.08	325.09	19.7	82.35
97/98 LMW-PAH	2,993.32	140.23	895.85	633.6	649.8	354.87	24.51	73.1
97/98 LMW-PAH	3,014.06	106.55	819.52	NA	NA	375.79	21.87	84.16
97/98 LMW-PAH	4,063.38	148.09	686.14	NA	NA	341.78	20.84	66.42
97/98 LMW-PAH	2,695.16	184.74	NA	NA	NA	NA	NA	69.57

APPENDIX C

Historical Data Tables

Table C-1. Lipid Data - Flounder Fillet 1992 – 2003.

Year	Station	Sample	Bottle	Fraction	Parameter	Value	Val Qual	Unit Code
1992	BS	92-257	92-257M	FILLET	LIPID	9.1		PCTDRYWT
1992	BS	92-258	92-258M	FILLET	LIPID	6.8		PCTDRYWT
1992	BS	92-25C	92-25CM	FILLET	LIPID	12.9		PCTDRYWT
1992	DIF	92-353	92-353M	FILLET	LIPID	5.4		PCTDRYWT
1992	DIF	92-354	92-354M	FILLET	LIPID	4.3		PCTDRYWT
1992	DIF	92-359	92-359M	FILLET	LIPID	9.1		PCTDRYWT
1992	DIF	92-35C	92-35CM	FILLET	LIPID	5.7		PCTDRYWT
1992	ECCB	92-451	92-451M	FILLET	LIPID	2.3		PCTDRYWT
1992	ECCB	92-452	92-452M	FILLET	LIPID	4.7		PCTDRYWT
1992	ECCB	92-456	92-456M	FILLET	LIPID	1.8		PCTDRYWT
1992	ECCB	92-45C	92-45CM	FILLET	LIPID	5.7		PCTDRYWT
1992	NB	92-300	92-300M	FILLET	LIPID	5.0		PCTDRYWT
1992	NB	92-307	92-307M	FILLET	LIPID	5.6		PCTDRYWT
1992	NB	92-308	92-308M	FILLET	LIPID	1.3		PCTDRYWT
1992	NB	92-30C	92-30CM	FILLET	LIPID	8.0		PCTDRYWT
1992	OS	92-400	92-400M	FILLET	LIPID	9.1		PCTDRYWT
1992	OS	92-401	92-401M	FILLET	LIPID	16.5		PCTDRYWT
1992	OS	92-409	92-409M	FILLET	LIPID	4.6		PCTDRYWT
1992	OS	92-40C	92-40CM	FILLET	LIPID	12.9		PCTDRYWT
1993	DIF	F93010465	465SF	FILLET	LIPID	2.3		PCTDRYWT
1993	DIF	F93010466	466SF	FILLET	LIPID	5.8		PCTDRYWT
1993	DIF	F93010467	467SF	FILLET	LIPID	1.8		PCTDRYWT
1993	DIF	F93010468	468SF	FILLET	LIPID	2.4		PCTDRYWT
1993	DIF	F93010469	469SF	FILLET	LIPID	1.6		PCTDRYWT
1993	DIF	F93010470	470SF	FILLET	LIPID	2.6		PCTDRYWT
1993	DIF	F93010471	471SF	FILLET	LIPID	3.4		PCTDRYWT
1993	DIF	F93010472	472SF	FILLET	LIPID	1.9		PCTDRYWT
1993	DIF	F93010473	473SF	FILLET	LIPID	4.8		PCTDRYWT
1993	DIF	F93010474	474SF	FILLET	LIPID	5.4		PCTDRYWT
1993	ECCB	F93010625	625SF	FILLET	LIPID	1.6		PCTDRYWT
1993	ECCB	F93010626	626SF	FILLET	LIPID	3.2		PCTDRYWT
1993	ECCB	F93010627	627SF	FILLET	LIPID	3.4		PCTDRYWT
1993	ECCB	F93010628	628SF	FILLET	LIPID	2.8		PCTDRYWT
1993	ECCB	F93010629	629SF	FILLET	LIPID	4.5		PCTDRYWT
1993	ECCB	F93010630	630SF	FILLET	LIPID	2.3		PCTDRYWT
1993	ECCB	F93010631	631SF	FILLET	LIPID	3.8		PCTDRYWT
1993	ECCB	F93010632	632SF	FILLET	LIPID	4.8		PCTDRYWT
1993	ECCB	F93010633	633SF	FILLET	LIPID	1.6		PCTDRYWT
1993	ECCB	F93010634	634SF	FILLET	LIPID	1.5		PCTDRYWT
1993	OS	F93010565	565SF	FILLET	LIPID	3.6		PCTDRYWT
1993	OS	F93010566	566SF	FILLET	LIPID	1.6		PCTDRYWT
1993	OS	F93010567	567SF	FILLET	LIPID	2.6		PCTDRYWT
1993	OS	F93010569	569SF	FILLET	LIPID	3.1		PCTDRYWT
1993	OS	F93010570	570SF	FILLET	LIPID	4.0		PCTDRYWT
1993	OS	F93010571	571SF	FILLET	LIPID	1.5		PCTDRYWT

Table C-1. Lipid Data - Flounder Fillet 1992 – 2003.
(Continued)

Year	Station	Sample	Bottle	Fraction	Parameter	Value	Val Qual	Unit Code
1993	OS	F93010572	572SF	FILLET	LIPID	1.6		PCTDRYWT
1993	OS	F93010573	573SF	FILLET	LIPID	5.1		PCTDRYWT
1993	OS	F93010574	574SF	FILLET	LIPID	1.6		PCTDRYWT
1994	BS	FI301FLNDR	OU34	FILLET	LIPID	6.1		PCTDRYWT
1994	BS	FI302FLNDR	OU35	FILLET	LIPID	3.8		PCTDRYWT
1994	BS	FI303FLNDR	OU36	FILLET	LIPID	5.2		PCTDRYWT
1994	DIF	FI101FLNDR	OU28	FILLET	LIPID	4.4		PCTDRYWT
1994	DIF	FI102FLNDR	OU29	FILLET	LIPID	4.7		PCTDRYWT
1994	DIF	FI103FLNDR	OU30	FILLET	LIPID	5.5		PCTDRYWT
1994	ECCB	FI501FLNDR	OU40	FILLET	LIPID	6.3		PCTDRYWT
1994	ECCB	FI502FLNDR	OU41	FILLET	LIPID	6.5		PCTDRYWT
1994	ECCB	FI503FLNDR	OU42	FILLET	LIPID	3.5		PCTDRYWT
1994	NB	FI201FLNDR	OU31	FILLET	LIPID	5.3		PCTDRYWT
1994	NB	FI202FLNDR	OU32	FILLET	LIPID	3.4		PCTDRYWT
1994	NB	FI203FLNDR	OU33	FILLET	LIPID	6.2		PCTDRYWT
1994	OS	FI401FLNDR	OU37	FILLET	LIPID	6.5		PCTDRYWT
1994	OS	FI402FLNDR	OU38	FILLET	LIPID	3.6		PCTDRYWT
1994	OS	FI403FLNDR	OU39	FILLET	LIPID	6.3		PCTDRYWT
1995	DIF	P95111000C1	P95111000TC1	FILLET	LIPID	2.3		PCTDRYWT
1995	DIF	P95111000C2	P95111000TC2	FILLET	LIPID	0.9		PCTDRYWT
1995	DIF	P95111000C3	P95111000TC3	FILLET	LIPID	2.5		PCTDRYWT
1995	ECCB	P95115000C1	P95115000TC1	FILLET	LIPID	2.2		PCTDRYWT
1995	ECCB	P95115000C2	P95115000TC2	FILLET	LIPID	2.5		PCTDRYWT
1995	ECCB	P95115000C3	P95115000TC3	FILLET	LIPID	2.8		PCTDRYWT
1995	OS	P95114000C1	P95114000TC1	FILLET	LIPID	2.9		PCTDRYWT
1995	OS	P95114000C2	P95114000TC2	FILLET	LIPID	1.9		PCTDRYWT
1995	OS	P95114000C3	P95114000TC3	FILLET	LIPID	1.8		PCTDRYWT
1996	BS	P96113000C1	P96113000TC1	FILLET	LIPID	2.4		PCTDRYWT
1996	BS	P96113000C2	P96113000TC2	FILLET	LIPID	1.4		PCTDRYWT
1996	BS	P96113000C3	P96113000TC3	FILLET	LIPID	1.9		PCTDRYWT
1996	DIF	P96111000C1	P96111000TC1	FILLET	LIPID	2.6		PCTDRYWT
1996	DIF	P96111000C2	P96111000TC2	FILLET	LIPID	2.0		PCTDRYWT
1996	DIF	P96111000C3	P96111000TC3	FILLET	LIPID	1.8		PCTDRYWT
1996	ECCB	P96115000C1	P96115000TC1	FILLET	LIPID	2.2		PCTDRYWT
1996	ECCB	P96115000C2	P96115000TC2	FILLET	LIPID	2.0		PCTDRYWT
1996	ECCB	P96115000C3	P96115000TC3	FILLET	LIPID	2.6		PCTDRYWT
1996	NB	P96112000C1	P96112000TC1	FILLET	LIPID	1.7		PCTDRYWT
1996	NB	P96112000C2	P96112000TC2	FILLET	LIPID	3.3		PCTDRYWT
1996	NB	P96112000C3	P96112000TC3	FILLET	LIPID	1.9		PCTDRYWT
1996	OS	P96114000C1	P96114000TC1	FILLET	LIPID	1.5		PCTDRYWT
1996	OS	P96114000C2	P96114000TC2	FILLET	LIPID	2.3		PCTDRYWT
1996	OS	P96114000C3	P96114000TC3	FILLET	LIPID	1.9		PCTDRYWT
1997	DIF	P97111000C1	P97111000TC1	FILLET	LIPID	1.4		PCTDRYWT
1997	DIF	P97111000C2	P97111000TC2	FILLET	LIPID	1.5		PCTDRYWT

Table C-1. Lipid Data - Flounder Fillet 1992 – 2003.
(Continued)

Year	Station	Sample	Bottle	Fraction	Parameter	Value	Val Qual	Unit Code
1997	DIF	P97111000C3	P97111000TC3	FILLET	LIPID	1.3		PCTDRYWT
1997	ECCB	P97115000C1	P97115000TC1	FILLET	LIPID	2.3		PCTDRYWT
1997	ECCB	P97115000C2	P97115000TC2	FILLET	LIPID	1.3		PCTDRYWT
1997	ECCB	P97115000C3	P97115000TC3	FILLET	LIPID	1.0		PCTDRYWT
1997	OS	P97114000C1	P97114000TC1	FILLET	LIPID	1.5		PCTDRYWT
1997	OS	P97114000C2	P97114000TC2	FILLET	LIPID	1.7		PCTDRYWT
1997	OS	P97114000C3	P97114000TC3	FILLET	LIPID	1.7		PCTDRYWT
1998	DIF	VQST11	VQ79	FILLET	LIPID	6.0		PCTDRYWT
1998	DIF	VQST12	VQ80	FILLET	LIPID	14.0		PCTDRYWT
1998	DIF	VQST13	VQ81	FILLET	LIPID	3.0		PCTDRYWT
1998	ECCB	VQST51	VR06	FILLET	LIPID	9.0		PCTDRYWT
1998	ECCB	VQST52	VR07	FILLET	LIPID	5.0		PCTDRYWT
1998	ECCB	VQST53	VR08	FILLET	LIPID	6.0		PCTDRYWT
1998	OS	VQST41	VQ85	FILLET	LIPID	2.0		PCTDRYWT
1998	OS	VQST42	VQ86	FILLET	LIPID	3.0		PCTDRYWT
1998	OS	VQST43	VQ87	FILLET	LIPID	11.0		PCTDRYWT
1999	BS	FF99130C1	WM17COMP	FILLET	LIPID	5.4		PCTDRYWT
1999	BS	FF99130C2	WM18COMP	FILLET	LIPID	6.2		PCTDRYWT
1999	BS	FF99130C3	WM19COMP	FILLET	LIPID	4.1		PCTDRYWT
1999	DIF	FF99110C1	WQ73COMP	FILLET	LIPID	4.7		PCTDRYWT
1999	DIF	FF99110C2	WQ74COMP	FILLET	LIPID	3.9		PCTDRYWT
1999	DIF	FF99110C3	WQ75COMP	FILLET	LIPID	3.9		PCTDRYWT
1999	ECCB	FF99150C1	WM90COMP	FILLET	LIPID	3.2		PCTDRYWT
1999	ECCB	FF99150C2	WM91COMP	FILLET	LIPID	3.1		PCTDRYWT
1999	ECCB	FF99150C3	WM92COMP	FILLET	LIPID	3.0		PCTDRYWT
1999	NB	FF99120C1	WM20COMP	FILLET	LIPID	5.7		PCTDRYWT
1999	NB	FF99120C2	WM21COMP	FILLET	LIPID	4.1		PCTDRYWT
1999	NB	FF99120C3	WM22COMP	FILLET	LIPID	3.8		PCTDRYWT
1999	OS	FF99140C1	WM70COMP	FILLET	LIPID	4.8		PCTDRYWT
1999	OS	FF99140C2	WM71COMP	FILLET	LIPID	5.3		PCTDRYWT
1999	OS	FF99140C3	WM72COMP	FILLET	LIPID	4.2		PCTDRYWT
2000	DIF	FF00110C1	XT83	FILLET	LIPID	2.5		PCTDRYWT
2000	DIF	FF00110C2	XT84	FILLET	LIPID	2.8		PCTDRYWT
2000	DIF	FF00110C3	XT85	FILLET	LIPID	2.2		PCTDRYWT
2000	ECCB	FF00150C1	XU22	FILLET	LIPID	2.0		PCTDRYWT
2000	ECCB	FF00150C2	XU23	FILLET	LIPID	3.3		PCTDRYWT
2000	ECCB	FF00150C3	XU24	FILLET	LIPID	3.0		PCTDRYWT
2000	OS	FF00140C1	XT77	FILLET	LIPID	2.6		PCTDRYWT
2000	OS	FF00140C2	XT78	FILLET	LIPID	3.1		PCTDRYWT
2000	OS	FF00140C3	XT79	FILLET	LIPID	3.1		PCTDRYWT
2001	DIF	FF01110C1	YV39	FILLET	LIPID	2.5		PCTDRYWT
2001	DIF	FF01110C2	YV40	FILLET	LIPID	1.8		PCTDRYWT
2001	DIF	FF01110C3	YV41	FILLET	LIPID	2.3		PCTDRYWT
2001	ECCB	FF01150C1	YV63	FILLET	LIPID	1.8		PCTDRYWT

Table C-1. Lipid Data - Flounder Fillet 1992 – 2003.
(Continued)

Year	Station	Sample	Bottle	Fraction	Parameter	Value	Val Qual	Unit Code
2001	ECCB	FF01150C2	YV64	FILLET	LIPID	2.1		PCTDRYWT
2001	ECCB	FF01150C3	YV65	FILLET	LIPID	2.1		PCTDRYWT
2001	OS	FF01140C1	YV45	FILLET	LIPID	1.9		PCTDRYWT
2001	OS	FF01140C2	YV46	FILLET	LIPID	2.1		PCTDRYWT
2001	OS	FF01140C3	YV47	FILLET	LIPID	2.1		PCTDRYWT
2002	BS	FF02130C1	V3625	FILLET	LIPID	4.6		PCTDRYWT
2002	BS	FF02130C2	V3626	FILLET	LIPID	4.2		PCTDRYWT
2002	BS	FF02130C3	V3627	FILLET	LIPID	2.8		PCTDRYWT
2002	DIF	FF02110C1	V3619	FILLET	LIPID	5.3		PCTDRYWT
2002	DIF	FF02110C2	V3620	FILLET	LIPID	5.1		PCTDRYWT
2002	DIF	FF02110C3	V3621	FILLET	LIPID	4.2		PCTDRYWT
2002	ECCB	FF02150C1	V3959	FILLET	LIPID	4.6		PCTDRYWT
2002	ECCB	FF02150C2	V3960	FILLET	LIPID	3.6		PCTDRYWT
2002	ECCB	FF02150C3	V3961	FILLET	LIPID	2.5		PCTDRYWT
2002	NB	FF02120C1	V3607	FILLET	LIPID	2.7		PCTDRYWT
2002	NB	FF02120C2	V3608	FILLET	LIPID	3.6		PCTDRYWT
2002	NB	FF02120C3	V3609	FILLET	LIPID	4.5		PCTDRYWT
2002	OS	FF02140C1	V3613	FILLET	LIPID	5.0		PCTDRYWT
2002	OS	FF02140C2	V3614	FILLET	LIPID	4.4		PCTDRYWT
2002	OS	FF02140C3	V3615	FILLET	LIPID	4.0		PCTDRYWT
2003	DIF	FF03110C1	T1834	FILLET	LIPID	2.5		PCTDRYWT
2003	DIF	FF03110C2	T1835	FILLET	LIPID	1.7		PCTDRYWT
2003	DIF	FF03110C3	T1836	FILLET	LIPID	2.1		PCTDRYWT
2003	ECCB	FF03150C1	T1846	FILLET	LIPID	2.4		PCTDRYWT
2003	ECCB	FF03150C2	T1847	FILLET	LIPID	1.8		PCTDRYWT
2003	ECCB	FF03150C3	T1848	FILLET	LIPID	1.8		PCTDRYWT
2003	OS	FF03140C1	T1840	FILLET	LIPID	2.7		PCTDRYWT
2003	OS	FF03140C2	T1841	FILLET	LIPID	2.5		PCTDRYWT
2003	OS	FF03140C3	T1842	FILLET	LIPID	2		PCTDRYWT

Table C-2. Lipid Data - Flounder Liver 1992 – 2003.

Year	Station	Sample	Bottle	Fraction	Parameter	Value	Val Qual	Unit Code
1992	BS	92-253	92-253L	LIVER	LIPID	37.5		PCTDRYWT
1992	BS	92-257	92-257L	LIVER	LIPID	49.3		PCTDRYWT
1992	BS	92-258	92-258L	LIVER	LIPID	25.0		PCTDRYWT
1992	BS	92-25C	92-25CL	LIVER	LIPID	19.5		PCTDRYWT
1992	DIF	92-353	92-353L	LIVER	LIPID	21.1		PCTDRYWT
1992	DIF	92-354	92-354L	LIVER	LIPID	13.0		PCTDRYWT
1992	DIF	92-359	92-359L	LIVER	LIPID	74.0		PCTDRYWT
1992	DIF	92-35C	92-35CL	LIVER	LIPID	22.7		PCTDRYWT
1992	ECCB	92-451	92-451L	LIVER	LIPID	15.9		PCTDRYWT
1992	ECCB	92-452	92-452L	LIVER	LIPID	18.5		PCTDRYWT
1992	ECCB	92-456	92-456L	LIVER	LIPID	29.9		PCTDRYWT
1992	ECCB	92-45C	92-45CL	LIVER	LIPID	22.1		PCTDRYWT
1992	NB	92-300	92-300L	LIVER	LIPID	46.2		PCTDRYWT
1992	NB	92-307	92-307L	LIVER	LIPID	20.3		PCTDRYWT
1992	NB	92-308	92-308L	LIVER	LIPID	26.2		PCTDRYWT
1992	NB	92-30C	92-30CL	LIVER	LIPID	28.4		PCTDRYWT
1992	OS	92-400	92-400L	LIVER	LIPID	25.5		PCTDRYWT
1992	OS	92-401	92-401L	LIVER	LIPID	52.4		PCTDRYWT
1992	OS	92-409	92-409L	LIVER	LIPID	20.2		PCTDRYWT
1992	OS	92-40C	92-40CL	LIVER	LIPID	22.5		PCTDRYWT
1993	DIF	FI1-04	FI1-04CL	LIVER	LIPID	34.0		PCTDRYWT
1993	ECCB	FI5-06	FI5-06CL	LIVER	LIPID	20.0		PCTDRYWT
1993	OS	FI4-05	FI4-05CL	LIVER	LIPID	22.6		PCTDRYWT
1994	BS	FI301FLNDR	OV86	LIVER	LIPID	104.1		PCTDRYWT
1994	BS	FI302FLNDR	OV87	LIVER	LIPID	33.9		PCTDRYWT
1994	BS	FI303FLNDR	OV88	LIVER	LIPID	54.1		PCTDRYWT
1994	DIF	FI101FLNDR	OV83	LIVER	LIPID	98.5		PCTDRYWT
1994	DIF	FI102FLNDR	OV84	LIVER	LIPID	75.1		PCTDRYWT
1994	DIF	FI103FLNDR	OV85	LIVER	LIPID	84.3		PCTDRYWT
1994	ECCB	FI501FLNDR	OV95	LIVER	LIPID	34.2		PCTDRYWT
1994	ECCB	FI502FLNDR	OV96	LIVER	LIPID	14.7		PCTDRYWT
1994	ECCB	FI503FLNDR	OV97	LIVER	LIPID	50.0		PCTDRYWT
1994	NB	FI201FLNDR	OV89	LIVER	LIPID	38.9		PCTDRYWT
1994	NB	FI202FLNDR	OV90	LIVER	LIPID	34.2		PCTDRYWT
1994	NB	FI203FLNDR	OV91	LIVER	LIPID	41.8		PCTDRYWT
1994	OS	FI401FLNDR	OV92	LIVER	LIPID	37.4		PCTDRYWT
1994	OS	FI402FLNDR	OV93	LIVER	LIPID	35.6		PCTDRYWT
1994	OS	FI403FLNDR	OV94	LIVER	LIPID	31.4		PCTDRYWT
1995	DIF	P95111000C1	P95111000LC1	LIVER	LIPID	28.5		PCTDRYWT
1995	DIF	P95111000C2	P95111000LC2	LIVER	LIPID	44.9		PCTDRYWT
1995	DIF	P95111000C3	P95111000LC3	LIVER	LIPID	25.7		PCTDRYWT
1995	ECCB	P95115000C1	P95115000LC1	LIVER	LIPID	11.2		PCTDRYWT
1995	ECCB	P95115000C2	P95115000LC2	LIVER	LIPID	15.2		PCTDRYWT
1995	ECCB	P95115000C3	P95115000LC3	LIVER	LIPID	16.4		PCTDRYWT
1995	OS	P95114000C1	P95114000LC1	LIVER	LIPID	24.0		PCTDRYWT

Table C-2. Lipid Data - Flounder Liver 1992 – 2003.
(Continued)

Year	Station	Sample	Bottle	Fraction	Parameter	Value	Val Qual	Unit Code
1995	OS	P95114000C2	P95114000LC2	LIVER	LIPID	20.6		PCTDRYWT
1995	OS	P95114000C3	P95114000LC3	LIVER	LIPID	25.0		PCTDRYWT
1996	BS	P96113000C1	P96113000LC1	LIVER	LIPID	19.6		PCTDRYWT
1996	BS	P96113000C2	P96113000LC2	LIVER	LIPID	24.7		PCTDRYWT
1996	BS	P96113000C3	P96113000LC3	LIVER	LIPID	20.4		PCTDRYWT
1996	DIF	P96111000C1	P96111000LC1	LIVER	LIPID	28.3		PCTDRYWT
1996	DIF	P96111000C2	P96111000LC2	LIVER	LIPID	22.6		PCTDRYWT
1996	DIF	P96111000C3	P96111000LC3	LIVER	LIPID	20.2		PCTDRYWT
1996	ECCB	P96115000C1	P96115000LC1	LIVER	LIPID	28.9		PCTDRYWT
1996	ECCB	P96115000C2	P96115000LC2	LIVER	LIPID	26.3		PCTDRYWT
1996	ECCB	P96115000C3	P96115000LC3	LIVER	LIPID	20.2		PCTDRYWT
1996	NB	P96112000C1	P96112000LC1	LIVER	LIPID	19.3		PCTDRYWT
1996	NB	P96112000C2	P96112000LC2	LIVER	LIPID	24.3		PCTDRYWT
1996	NB	P96112000C3	P96112000LC3	LIVER	LIPID	15.2		PCTDRYWT
1996	OS	P96114000C1	P96114000LC1	LIVER	LIPID	24.1		PCTDRYWT
1996	OS	P96114000C2	P96114000LC2	LIVER	LIPID	27.2		PCTDRYWT
1996	OS	P96114000C3	P96114000LC3	LIVER	LIPID	21.4		PCTDRYWT
1997	DIF	P97111000C1	P97111000LC1	LIVER	LIPID	13.3		PCTDRYWT
1997	DIF	P97111000C2	P97111000LC2	LIVER	LIPID	15.0		PCTDRYWT
1997	DIF	P97111000C3	P97111000LC3	LIVER	LIPID	11.2		PCTDRYWT
1997	ECCB	P97115000C1	P97115000LC1	LIVER	LIPID	15.4		PCTDRYWT
1997	ECCB	P97115000C2	P97115000LC2	LIVER	LIPID	17.7		PCTDRYWT
1997	ECCB	P97115000C3	P97115000LC3	LIVER	LIPID	23.2		PCTDRYWT
1997	OS	P97114000C1	P97114000LC1	LIVER	LIPID	16.3		PCTDRYWT
1997	OS	P97114000C2	P97114000LC2	LIVER	LIPID	14.0		PCTDRYWT
1997	OS	P97114000C3	P97114000LC3	LIVER	LIPID	14.1		PCTDRYWT
1998	DIF	VQST11	VQ82	LIVER	LIPID	51.0		PCTDRYWT
1998	DIF	VQST12	VQ83	LIVER	LIPID	54.0		PCTDRYWT
1998	DIF	VQST13	VQ84	LIVER	LIPID	57.0		PCTDRYWT
1998	ECCB	VQST51	VR09	LIVER	LIPID	42.0		PCTDRYWT
1998	ECCB	VQST52	VR10	LIVER	LIPID	25.0		PCTDRYWT
1998	ECCB	VQST53	VR11	LIVER	LIPID	20.0		PCTDRYWT
1998	OS	VQST41	VQ88	LIVER	LIPID	65.0		PCTDRYWT
1998	OS	VQST42	VQ89	LIVER	LIPID	42.0		PCTDRYWT
1998	OS	VQST43	VQ90	LIVER	LIPID	29.0		PCTDRYWT
1999	BS	FF99130C1	WM14COMP	LIVER	LIPID	40.7		PCTDRYWT
1999	BS	FF99130C2	WM15COMP	LIVER	LIPID	31.8		PCTDRYWT
1999	BS	FF99130C3	WM16COMP	LIVER	LIPID	37.4		PCTDRYWT
1999	DIF	FF99110C1	WQ76COMP	LIVER	LIPID	50.2		PCTDRYWT
1999	DIF	FF99110C2	WQ77COMP	LIVER	LIPID	38.8		PCTDRYWT
1999	DIF	FF99110C3	WQ78COMP	LIVER	LIPID	43.5		PCTDRYWT
1999	ECCB	FF99150C1	WM93COMP	LIVER	LIPID	87.3		PCTDRYWT
1999	ECCB	FF99150C2	WM94COMP	LIVER	LIPID	27.2		PCTDRYWT
1999	ECCB	FF99150C3	WM95COMP	LIVER	LIPID	35.1		PCTDRYWT

Table C-2. Lipid Data - Flounder Liver 1992 – 2003.
(Continued)

Year	Station	Sample	Bottle	Fraction	Parameter	Value	Val Qual	Unit Code
1999	NB	FF99120C1	WM23COMP	LIVER	LIPID	28.1		PCTDRYWT
1999	NB	FF99120C2	WM24COMP	LIVER	LIPID	29.0		PCTDRYWT
1999	NB	FF99120C3	WM25COMP	LIVER	LIPID	24.5		PCTDRYWT
1999	OS	FF99140C1	WM73COMP	LIVER	LIPID	30.5		PCTDRYWT
1999	OS	FF99140C2	WM74COMP	LIVER	LIPID	24.7		PCTDRYWT
1999	OS	FF99140C3	WM75COMP	LIVER	LIPID	27.8		PCTDRYWT
2000	DIF	FF00110C1	XT86	LIVER	LIPID	41.5		PCTDRYWT
2000	DIF	FF00110C2	XT87	LIVER	LIPID	35.6		PCTDRYWT
2000	DIF	FF00110C3	XT88	LIVER	LIPID	55.5		PCTDRYWT
2000	ECCB	FF00150C1	XU25	LIVER	LIPID	32.1		PCTDRYWT
2000	ECCB	FF00150C2	XU26	LIVER	LIPID	36.2		PCTDRYWT
2000	ECCB	FF00150C3	XU27	LIVER	LIPID	31.8		PCTDRYWT
2000	OS	FF00140C1	XT80	LIVER	LIPID	48.1		PCTDRYWT
2000	OS	FF00140C2	XT81	LIVER	LIPID	48.7		PCTDRYWT
2000	OS	FF00140C3	XT82	LIVER	LIPID	42.2		PCTDRYWT
2001	DIF	FF01110C1	YV42	LIVER	LIPID	18.3		PCTDRYWT
2001	DIF	FF01110C2	YV43	LIVER	LIPID	20.9		PCTDRYWT
2001	DIF	FF01110C3	YV44	LIVER	LIPID	16.9		PCTDRYWT
2001	ECCB	FF01150C1	YV66	LIVER	LIPID	18.1		PCTDRYWT
2001	ECCB	FF01150C2	YV67	LIVER	LIPID	17.1		PCTDRYWT
2001	ECCB	FF01150C3	YV68	LIVER	LIPID	17.9		PCTDRYWT
2001	OS	FF01140C1	YV48	LIVER	LIPID	25.9		PCTDRYWT
2001	OS	FF01140C2	YV49	LIVER	LIPID	22.2		PCTDRYWT
2001	OS	FF01140C3	YV50	LIVER	LIPID	20.1		PCTDRYWT
2002	BS	FF02130C1	V3622	LIVER	LIPID	33.0		PCTDRYWT
2002	BS	FF02130C2	V3623	LIVER	LIPID	36.0		PCTDRYWT
2002	BS	FF02130C3	V3624	LIVER	LIPID	33.0		PCTDRYWT
2002	DIF	FF02110C1	V3616	LIVER	LIPID	33.1		PCTDRYWT
2002	DIF	FF02110C2	V3617	LIVER	LIPID	27.7		PCTDRYWT
2002	DIF	FF02110C3	V3618	LIVER	LIPID	35.0		PCTDRYWT
2002	ECCB	FF02150C1	V3956	LIVER	LIPID	45.2		PCTDRYWT
2002	ECCB	FF02150C2	V3957	LIVER	LIPID	39.3		PCTDRYWT
2002	ECCB	FF02150C3	V3958	LIVER	LIPID	32.9		PCTDRYWT
2002	NB	FF02120C1	V3604	LIVER	LIPID	44.3		PCTDRYWT
2002	NB	FF02120C2	V3605	LIVER	LIPID	38.1		PCTDRYWT
2002	NB	FF02120C3	V3606	LIVER	LIPID	39.5		PCTDRYWT
2002	OS	FF02140C1	V3610	LIVER	LIPID	58.2		PCTDRYWT
2002	OS	FF02140C2	V3611	LIVER	LIPID	45.8		PCTDRYWT
2002	OS	FF02140C3	V3612	LIVER	LIPID	32.2		PCTDRYWT
2003	DIF	FF03110C1	T1831	LIVER	LIPID	35.2		PCTDRYWT
2003	DIF	FF03110C2	T1832	LIVER	LIPID	29.4		PCTDRYWT
2003	DIF	FF03110C3	T1833	LIVER	LIPID	31.9		PCTDRYWT
2003	ECCB	FF03150C1	T1843	LIVER	LIPID	27.9		PCTDRYWT
2003	ECCB	FF03150C2	T1844	LIVER	LIPID	29.6		PCTDRYWT
2003	ECCB	FF03150C3	T1845	LIVER	LIPID	25.5		PCTDRYWT

Table C-2. Lipid Data - Flounder Liver 1992 – 2003.
(Continued)

Year	Station	Sample	Bottle	Fraction	Parameter	Value	Val Qual	Unit Code
2003	OS	FF03140C1	T1837	LIVER	LIPID	29.3		PCTDRYWT
2003	OS	FF03140C2	T1838	LIVER	LIPID	28.7		PCTDRYWT
2003	OS	FF03140C3	T1839	LIVER	LIPID	26.9		PCTDRYWT

Table C-3. Lipid Data - Lobster Meat 1992 – 2003.

Year	Station	Sample	Bottle	Fraction	Parameter	Value	Val Qual	Unit Code
1992	DIF	92-467	92-467M	MEAT	LIPID	16.2		PCTDRYWT
1992	DIF	92-469	92-469M	MEAT	LIPID	19.6		PCTDRYWT
1992	DIF	92-482	92-482M	MEAT	LIPID	21.8		PCTDRYWT
1992	ECCB	92-465	92-465M	MEAT	LIPID	13.6		PCTDRYWT
1992	ECCB	92-466	92-466M	MEAT	LIPID	26.9		PCTDRYWT
1992	ECCB	92-476	92-476M	MEAT	LIPID	8.3		PCTDRYWT
1992	OS	92-460	92-460M	MEAT	LIPID	14.8		PCTDRYWT
1992	OS	92-463	92-463M	MEAT	LIPID	13.2		PCTDRYWT
1992	OS	92-464	92-464M	MEAT	LIPID	12.6		PCTDRYWT
1993	DIF	F93010KG34	KG34SM	MEAT	LIPID	3.2		PCTDRYWT
1993	DIF	S93030KI06	KI06SM	MEAT	LIPID	1.6		PCTDRYWT
1993	DIF	S93030KI07	KI07SM	MEAT	LIPID	2.7		PCTDRYWT
1993	ECCB	LOB-F0KH99	KH99SM	MEAT	LIPID	6.8		PCTDRYWT
1993	ECCB	LOB-F0KI01	KI01SM	MEAT	LIPID	4.8		PCTDRYWT
1993	ECCB	LOB-F0KI02	KI02SM	MEAT	LIPID	4.5		PCTDRYWT
1993	ECCB	LOB-F0KI03	KI03SM	MEAT	LIPID	2.8		PCTDRYWT
1993	ECCB	LOB-F0KI04	KI04SM	MEAT	LIPID	7.6		PCTDRYWT
1993	ECCB	LOB-F0KI05	KI05SM	MEAT	LIPID	2.1		PCTDRYWT
1993	ECCB	LOB-F0KI21	KI21SM	MEAT	LIPID	0.4		PCTDRYWT
1993	ECCB	LOB-F0KI22	KI22SM	MEAT	LIPID	7.1		PCTDRYWT
1993	ECCB	LOB-F0KI23	KI23SM	MEAT	LIPID	4.1		PCTDRYWT
1993	ECCB	LOB-F0KI24	KI24SM	MEAT	LIPID	1.6		PCTDRYWT
1993	OS	S93030KH97	KH97SM	MEAT	LIPID	3.5		PCTDRYWT
1993	OS	S93030KH98	KH98SM	MEAT	LIPID	3.8		PCTDRYWT
1994	DIF	FI101LOBST	OV31	MEAT	LIPID	10.9		PCTDRYWT
1994	DIF	FI102LOBST	OV32	MEAT	LIPID	9.7		PCTDRYWT
1994	DIF	FI103LOBST	OV33	MEAT	LIPID	6.2		PCTDRYWT
1994	ECCB	FI501LOBST	OV36	MEAT	LIPID	5.0		PCTDRYWT
1994	ECCB	FI502LOBST	OV37	MEAT	LIPID	4.8		PCTDRYWT
1994	ECCB	FI503LOBST	OV38	MEAT	LIPID	4.9		PCTDRYWT
1994	OS	FI401LOBST	OV34	MEAT	LIPID	13.4		PCTDRYWT
1994	OS	FI402LOBST	OV35	MEAT	LIPID	9.4		PCTDRYWT
1995	DIF	L95111000C1	L95111000TC1	MEAT	LIPID	4.4		PCTDRYWT
1995	DIF	L95111000C2	L95111000TC2	MEAT	LIPID	5.5		PCTDRYWT
1995	DIF	L95111000C3	L95111000TC3	MEAT	LIPID	4.9		PCTDRYWT
1995	ECCB	L95115000C1	L95115000TC1	MEAT	LIPID	5.1		PCTDRYWT
1995	ECCB	L95115000C2	L95115000TC2	MEAT	LIPID	4.4		PCTDRYWT
1995	ECCB	L95115000C3	L95115000TC3	MEAT	LIPID	4.5		PCTDRYWT
1995	OS	L95114000C1	L95114000TC1	MEAT	LIPID	5.2		PCTDRYWT
1995	OS	L95114000C2	L95114000TC2	MEAT	LIPID	4.3		PCTDRYWT
1995	OS	L95114000C3	L95114000TC3	MEAT	LIPID	3.3		PCTDRYWT
1996	DIF	L96111000C1	L96111000TC1	MEAT	LIPID	3.8		PCTDRYWT
1996	DIF	L96111000C2	L96111000TC2	MEAT	LIPID	3.4		PCTDRYWT
1996	DIF	L96111000C3	L96111000TC3	MEAT	LIPID	4.2		PCTDRYWT
1996	ECCB	L96115000C1	L96115000TC1	MEAT	LIPID	3.3		PCTDRYWT

Table C-3. Lipid Data - Lobster Meat 1992 – 2003.
(Continued)

Year	Station	Sample	Bottle	Fraction	Parameter	Value	Val Qual	Unit Code
1996	ECCB	L96115000C2	L96115000TC2	MEAT	LIPID	3.2		PCTDRYWT
1996	ECCB	L96115000C3	L96115000TC3	MEAT	LIPID	3.0		PCTDRYWT
1996	OS	L96114000C1	L96114000TC1	MEAT	LIPID	3.3		PCTDRYWT
1996	OS	L96114000C2	L96114000TC2	MEAT	LIPID	3.3		PCTDRYWT
1996	OS	L96114000C3	L96114000TC3	MEAT	LIPID	3.4		PCTDRYWT
1997	DIF	L97111000C1	L97111000TC1	MEAT	LIPID	4.0		PCTDRYWT
1997	DIF	L97111000C2	L97111000TC2	MEAT	LIPID	3.1		PCTDRYWT
1997	DIF	L97111000C3	L97111000TC3	MEAT	LIPID	3.1		PCTDRYWT
1997	ECCB	L97115000C1	L97115000TC1	MEAT	LIPID	3.4		PCTDRYWT
1997	ECCB	L97115000C2	L97115000TC2	MEAT	LIPID	3.0		PCTDRYWT
1997	ECCB	L97115000C3	L97115000TC3	MEAT	LIPID	3.5		PCTDRYWT
1997	OS	L97114000C1	L97114000TC1	MEAT	LIPID	3.2		PCTDRYWT
1997	OS	L97114000C2	L97114000TC2	MEAT	LIPID	3.6		PCTDRYWT
1997	OS	L97114000C3	L97114000TC3	MEAT	LIPID	3.3		PCTDRYWT
1998	DIF	VZST11	VZ35COMP	MEAT	LIPID	4.0		PCTDRYWT
1998	DIF	VZST12	VZ36COMP	MEAT	LIPID	3.0		PCTDRYWT
1998	DIF	VZST13	VZ37COMP	MEAT	LIPID	6.0		PCTDRYWT
1998	ECCB	VZST91	VZ29COMP	MEAT	LIPID	4.0		PCTDRYWT
1998	ECCB	VZST92	VZ30COMP	MEAT	LIPID	4.0		PCTDRYWT
1998	ECCB	VZST93	VZ31COMP	MEAT	LIPID	3.0		PCTDRYWT
1998	OS	VZST41	VZ23COMP	MEAT	LIPID	2.0		PCTDRYWT
1998	OS	VZST42	VZ24COMP	MEAT	LIPID	5.0		PCTDRYWT
1998	OS	VZST43	VZ25COMP	MEAT	LIPID	5.0		PCTDRYWT
1999	DIF	FL9911C1	XJ42	MEAT	LIPID	2.2		PCTDRYWT
1999	DIF	FL9911C2	XJ43	MEAT	LIPID	1.6		PCTDRYWT
1999	DIF	FL9911C3	XJ44	MEAT	LIPID	1.9		PCTDRYWT
1999	ECCB	FL9915C1	XJ48	MEAT	LIPID	2.6		PCTDRYWT
1999	ECCB	FL9915C2	XJ49	MEAT	LIPID	1.7		PCTDRYWT
1999	ECCB	FL9915C3	XJ50	MEAT	LIPID	1.8		PCTDRYWT
1999	OS	FL9914C1	XJ45	MEAT	LIPID	1.7		PCTDRYWT
1999	OS	FL9914C2	XJ46	MEAT	LIPID	1.3		PCTDRYWT
1999	OS	FL9914C3	XJ47	MEAT	LIPID	1.5		PCTDRYWT
2000	DIF	FL0011C1	YC90	MEAT	LIPID	1.9		PCTDRYWT
2000	DIF	FL0011C2	YC91	MEAT	LIPID	1.6		PCTDRYWT
2000	DIF	FL0011C3	YC92	MEAT	LIPID	2.1		PCTDRYWT
2000	ECCB	FL0015C1	YC87	MEAT	LIPID	2.0		PCTDRYWT
2000	ECCB	FL0015C2	YC88	MEAT	LIPID	2.3		PCTDRYWT
2000	ECCB	FL0015C3	YC89	MEAT	LIPID	1.9		PCTDRYWT
2000	OS	FL0014C1	YC93	MEAT	LIPID	1.7		PCTDRYWT
2000	OS	FL0014C2	YC94	MEAT	LIPID	1.7		PCTDRYWT
2000	OS	FL0014C3	YC95	MEAT	LIPID	1.7		PCTDRYWT
2001	DIF	FL0111-C1	ZH31	MEAT	LIPID	3.0		PCTDRYWT
2001	DIF	FL0111-C2	ZH32	MEAT	LIPID	2.9		PCTDRYWT
2001	DIF	FL0111-C3	ZH33	MEAT	LIPID	2.0		PCTDRYWT

Table C-3. Lipid Data - Lobster Meat 1992 – 2003.
(Continued)

Year	Station	Sample	Bottle	Fraction	Parameter	Value	Val Qual	Unit Code
2001	ECCB	FL0115-C1	ZH37	MEAT	LIPID	3.1		PCTDRYWT
2001	ECCB	FL0115-C2	ZH38	MEAT	LIPID	2.9		PCTDRYWT
2001	ECCB	FL0115-C3	ZH39	MEAT	LIPID	3.3		PCTDRYWT
2001	OS	FL0114-C1	ZI54	MEAT	LIPID	2.4		PCTDRYWT
2001	OS	FL0114-C2	ZI55	MEAT	LIPID	2.4		PCTDRYWT
2001	OS	FL0114-C3	ZI56	MEAT	LIPID	2.1		PCTDRYWT
2002	DIF	FL0211C1	V8626	MEAT	LIPID	2.0		PCTDRYWT
2002	DIF	FL0211C2	V8627	MEAT	LIPID	1.8		PCTDRYWT
2002	DIF	FL0211C3	V8628	MEAT	LIPID	1.8		PCTDRYWT
2002	ECCB	FL0215C1	V8638	MEAT	LIPID	2.2		PCTDRYWT
2002	ECCB	FL0215C2	V8639	MEAT	LIPID	2.2		PCTDRYWT
2002	ECCB	FL0215C3	V8640	MEAT	LIPID	1.8		PCTDRYWT
2002	OS	FL0214C1	V8632	MEAT	LIPID	2.5		PCTDRYWT
2002	OS	FL0214C2	V8633	MEAT	LIPID	1.7		PCTDRYWT
2002	OS	FL0214C3	V8634	MEAT	LIPID	1.8		PCTDRYWT
2003	DIF	FL0311C1	T6506	MEAT	LIPID	4.41		PCTDRYWT
2003	DIF	FL0311C2	T6507	MEAT	LIPID	4.53		PCTDRYWT
2003	DIF	FL0311C3	T6508	MEAT	LIPID	4.26		PCTDRYWT
2003	ECCB	FL0315C1	T7547	MEAT	LIPID	4.14		PCTDRYWT
2003	ECCB	FL0315C2	T7548	MEAT	LIPID	4.03		PCTDRYWT
2003	ECCB	FL0315C3	T7549	MEAT	LIPID	4.29		PCTDRYWT
2003	OS	FL0314C1	T7051	MEAT	LIPID	4.08		PCTDRYWT
2003	OS	FL0314C2	T7052	MEAT	LIPID	3.88		PCTDRYWT
2003	OS	FL0314C3	T7053	MEAT	LIPID	5.05		PCTDRYWT

Table C-4. Lipid Data - Lobster Hepatopancreas 1992 – 2003.

Year	Station	Sample	Bottle	Fraction	Parameter	Value	Val Qual	Unit Code
1992	DIF	92-467	92-467L	HEPATOPANC	LIPID	65.8		PCTDRYWT
1992	DIF	92-469	92-469L	HEPATOPANC	LIPID	73.7		PCTDRYWT
1992	DIF	92-482	92-482L	HEPATOPANC	LIPID	66.3		PCTDRYWT
1992	ECCB	92-465	92-465L	HEPATOPANC	LIPID	18.8		PCTDRYWT
1992	ECCB	92-466	92-466L	HEPATOPANC	LIPID	82.5		PCTDRYWT
1992	ECCB	92-476	92-476L	HEPATOPANC	LIPID	30.1		PCTDRYWT
1992	OS	92-460	92-460L	HEPATOPANC	LIPID	57.0		PCTDRYWT
1992	OS	92-463	92-463L	HEPATOPANC	LIPID	47.1		PCTDRYWT
1992	OS	92-464	92-464L	HEPATOPANC	LIPID	79.2		PCTDRYWT
1993	DIF	F93010KG34	KG34SH	HEPATOPANC	LIPID	34.3		PCTDRYWT
1993	DIF	S93030KI06	KI06SH	HEPATOPANC	LIPID	35.2		PCTDRYWT
1993	DIF	S93030KI07	KI07SH	HEPATOPANC	LIPID	55.8		PCTDRYWT
1993	ECCB	LOB-F0KH99	KH99SH	HEPATOPANC	LIPID	72.9		PCTDRYWT
1993	ECCB	LOB-F0KI01	KI01SH	HEPATOPANC	LIPID	33.6		PCTDRYWT
1993	ECCB	LOB-F0KI02	KI02SH	HEPATOPANC	LIPID	57.9		PCTDRYWT
1993	ECCB	LOB-F0KI03	KI03SH	HEPATOPANC	LIPID	43.5		PCTDRYWT
1993	ECCB	LOB-F0KI04	KI04SH	HEPATOPANC	LIPID	65.5		PCTDRYWT
1993	ECCB	LOB-F0KI05	KI05SH	HEPATOPANC	LIPID	33.7		PCTDRYWT
1993	ECCB	LOB-F0KI21	KI21SH	HEPATOPANC	LIPID	39.4		PCTDRYWT
1993	ECCB	LOB-F0KI22	KI22SH	HEPATOPANC	LIPID	40.3		PCTDRYWT
1993	ECCB	LOB-F0KI23	KI23SH	HEPATOPANC	LIPID	56.4		PCTDRYWT
1993	ECCB	LOB-F0KI24	KI24SH	HEPATOPANC	LIPID	67.2		PCTDRYWT
1993	OS	S93030KH97	KH97SH	HEPATOPANC	LIPID	56.2		PCTDRYWT
1993	OS	S93030KH98	KH98SH	HEPATOPANC	LIPID	45.3		PCTDRYWT
1994	DIF	FI101LOBST	OV42	HEPATOPANC	LIPID	72.4		PCTDRYWT
1994	DIF	FI102LOBST	OV43	HEPATOPANC	LIPID	71.5		PCTDRYWT
1994	DIF	FI103LOBST	OV44	HEPATOPANC	LIPID	67.5		PCTDRYWT
1994	ECCB	FI501LOBST	OV47	HEPATOPANC	LIPID	79.0		PCTDRYWT
1994	ECCB	FI502LOBST	OV48	HEPATOPANC	LIPID	67.3		PCTDRYWT
1994	ECCB	FI503LOBST	OV49	HEPATOPANC	LIPID	61.7		PCTDRYWT
1994	OS	FI401LOBST	OV45	HEPATOPANC	LIPID	59.2		PCTDRYWT
1994	OS	FI402LOBST	OV46	HEPATOPANC	LIPID	56.5		PCTDRYWT
1995	DIF	L95111000C1	L95111000HC1	HEPATOPANC	LIPID	70.8		PCTDRYWT
1995	DIF	L95111000C2	L95111000HC2	HEPATOPANC	LIPID	64.3		PCTDRYWT
1995	DIF	L95111000C3	L95111000HC3	HEPATOPANC	LIPID	55.9		PCTDRYWT
1995	ECCB	L95115000C1	L95115000HC1	HEPATOPANC	LIPID	57.7		PCTDRYWT
1995	ECCB	L95115000C2	L95115000HC2	HEPATOPANC	LIPID	64.7		PCTDRYWT
1995	ECCB	L95115000C3	L95115000HC3	HEPATOPANC	LIPID	79.6		PCTDRYWT
1995	OS	L95114000C1	L95114000HC1	HEPATOPANC	LIPID	70.9		PCTDRYWT
1995	OS	L95114000C2	L95114000HC2	HEPATOPANC	LIPID	60.4		PCTDRYWT
1995	OS	L95114000C3	L95114000HC3	HEPATOPANC	LIPID	61.8		PCTDRYWT
1996	DIF	L96111000C1	L96111000HC1	HEPATOPANC	LIPID	49.5		PCTDRYWT
1996	DIF	L96111000C2	L96111000HC2	HEPATOPANC	LIPID	60.1		PCTDRYWT
1996	DIF	L96111000C3	L96111000HC3	HEPATOPANC	LIPID	59.4		PCTDRYWT
1996	ECCB	L96115000C1	L96115000HC1	HEPATOPANC	LIPID	59.1		PCTDRYWT

Table C-4. Lipid Data - Lobster Hepatopancreas 1992 – 2003.
(Continued)

Year	Station	Sample	Bottle	Fraction	Parameter	Value	Val Qual	Unit Code
1996	ECCB	L96115000C2	L96115000HC2	HEPATOPANC	LIPID	65.1		PCTDRYWT
1996	ECCB	L96115000C3	L96115000HC3	HEPATOPANC	LIPID	60.6		PCTDRYWT
1996	OS	L96114000C1	L96114000HC1	HEPATOPANC	LIPID	47.4		PCTDRYWT
1996	OS	L96114000C2	L96114000HC2	HEPATOPANC	LIPID	54.1		PCTDRYWT
1996	OS	L96114000C3	L96114000HC3	HEPATOPANC	LIPID	52.4		PCTDRYWT
1997	DIF	L97111000C1	L97111000HC1	HEPATOPANC	LIPID	46.3		PCTDRYWT
1997	DIF	L97111000C2	L97111000HC2	HEPATOPANC	LIPID	56.5		PCTDRYWT
1997	DIF	L97111000C3	L97111000HC3	HEPATOPANC	LIPID	44.5		PCTDRYWT
1997	ECCB	L97115000C1	L97115000HC1	HEPATOPANC	LIPID	58.6		PCTDRYWT
1997	ECCB	L97115000C2	L97115000HC2	HEPATOPANC	LIPID	61.0		PCTDRYWT
1997	ECCB	L97115000C3	L97115000HC3	HEPATOPANC	LIPID	57.7		PCTDRYWT
1997	OS	L97114000C1	L97114000HC1	HEPATOPANC	LIPID	64.2		PCTDRYWT
1997	OS	L97114000C2	L97114000HC2	HEPATOPANC	LIPID	62.8		PCTDRYWT
1997	OS	L97114000C3	L97114000HC3	HEPATOPANC	LIPID	44.7		PCTDRYWT
1998	DIF	VZST11	VZ38COMP	HEPATOPANC	LIPID	104.0		PCTDRYWT
1998	DIF	VZST12	VZ39COMP	HEPATOPANC	LIPID	66.0		PCTDRYWT
1998	DIF	VZST13	VZ40COMP	HEPATOPANC	LIPID	68.0		PCTDRYWT
1998	ECCB	VZST91	VZ32COMP	HEPATOPANC	LIPID	59.0		PCTDRYWT
1998	ECCB	VZST92	VZ33COMP	HEPATOPANC	LIPID	60.0		PCTDRYWT
1998	ECCB	VZST93	VZ34COMP	HEPATOPANC	LIPID	59.0		PCTDRYWT
1998	OS	VZST41	VZ26COMP	HEPATOPANC	LIPID	68.0		PCTDRYWT
1998	OS	VZST42	VZ27COMP	HEPATOPANC	LIPID	70.0		PCTDRYWT
1998	OS	VZST43	VZ28COMP	HEPATOPANC	LIPID	60.0		PCTDRYWT
1999	DIF	FL9911C1	XJ51	HEPATOPANC	LIPID	32.3		PCTDRYWT
1999	DIF	FL9911C2	XJ52	HEPATOPANC	LIPID	30.0		PCTDRYWT
1999	DIF	FL9911C3	XJ53	HEPATOPANC	LIPID	31.8		PCTDRYWT
1999	ECCB	FL9915C1	XJ57	HEPATOPANC	LIPID	35.2		PCTDRYWT
1999	ECCB	FL9915C2	XJ58	HEPATOPANC	LIPID	37.3		PCTDRYWT
1999	ECCB	FL9915C3	XJ59	HEPATOPANC	LIPID	43.4		PCTDRYWT
1999	OS	FL9914C1	XJ54	HEPATOPANC	LIPID	30.2		PCTDRYWT
1999	OS	FL9914C2	XJ55	HEPATOPANC	LIPID	58.7		PCTDRYWT
1999	OS	FL9914C3	XJ56	HEPATOPANC	LIPID	40.8		PCTDRYWT
2000	DIF	FL0011C1	YC81	HEPATOPANC	LIPID	53.5		PCTDRYWT
2000	DIF	FL0011C2	YC82	HEPATOPANC	LIPID	57.6		PCTDRYWT
2000	DIF	FL0011C3	YC83	HEPATOPANC	LIPID	57.7		PCTDRYWT
2000	ECCB	FL0015C1	YC78	HEPATOPANC	LIPID	51.3		PCTDRYWT
2000	ECCB	FL0015C2	YC79	HEPATOPANC	LIPID	58.6		PCTDRYWT
2000	ECCB	FL0015C3	YC80	HEPATOPANC	LIPID	57.3		PCTDRYWT
2000	OS	FL0014C1	YC84	HEPATOPANC	LIPID	42.7		PCTDRYWT
2000	OS	FL0014C2	YC85	HEPATOPANC	LIPID	52.9		PCTDRYWT
2000	OS	FL0014C3	YC86	HEPATOPANC	LIPID	56.8		PCTDRYWT
2001	DIF	FL0111-C1	ZH34	HEPATOPANC	LIPID	55.2		PCTDRYWT
2001	DIF	FL0111-C2	ZH35	HEPATOPANC	LIPID	49.3		PCTDRYWT
2001	DIF	FL0111-C3	ZH36	HEPATOPANC	LIPID	55.6		PCTDRYWT

Table C-4. Lipid Data - Lobster Hepatopancreas 1992 – 2003.
(Continued)

Year	Station	Sample	Bottle	Fraction	Parameter	Value	Val Qual	Unit Code
2001	ECCB	FL0115-C1	ZH40	HEPATOPANC	LIPID	46.8		PCTDRYWT
2001	ECCB	FL0115-C2	ZH41	HEPATOPANC	LIPID	51.7		PCTDRYWT
2001	ECCB	FL0115-C3	ZH42	HEPATOPANC	LIPID	51.3		PCTDRYWT
2001	OS	FL0114-C1	ZI51	HEPATOPANC	LIPID	48.1		PCTDRYWT
2001	OS	FL0114-C2	ZI52	HEPATOPANC	LIPID	52.9		PCTDRYWT
2001	OS	FL0114-C3	ZI53	HEPATOPANC	LIPID	53.9		PCTDRYWT
2002	DIF	FL0211C1	V8629	HEPATOPANC	LIPID	60.9		PCTDRYWT
2002	DIF	FL0211C2	V8630	HEPATOPANC	LIPID	45.6		PCTDRYWT
2002	DIF	FL0211C3	V8631	HEPATOPANC	LIPID	60.0		PCTDRYWT
2002	ECCB	FL0215C1	V8641	HEPATOPANC	LIPID	62.4		PCTDRYWT
2002	ECCB	FL0215C2	V8642	HEPATOPANC	LIPID	50.2		PCTDRYWT
2002	ECCB	FL0215C3	V8643	HEPATOPANC	LIPID	53.4		PCTDRYWT
2002	OS	FL0214C1	V8635	HEPATOPANC	LIPID	67.0		PCTDRYWT
2002	OS	FL0214C2	V8636	HEPATOPANC	LIPID	44.9		PCTDRYWT
2002	OS	FL0214C3	V8637	HEPATOPANC	LIPID	85.0		PCTDRYWT
2003	DIF	FL0311C1	T6509	HEPATOPANC	LIPID	44.04		PCTDRYWT
2003	DIF	FL0311C2	T6510	HEPATOPANC	LIPID	42.1		PCTDRYWT
2003	DIF	FL0311C3	T6511	HEPATOPANC	LIPID	42.9		PCTDRYWT
2003	ECCB	FL0315C1	T7550	HEPATOPANC	LIPID	52.5		PCTDRYWT
2003	ECCB	FL0315C2	T7551	HEPATOPANC	LIPID	60.17		PCTDRYWT
2003	ECCB	FL0315C3	T7552	HEPATOPANC	LIPID	50.82		PCTDRYWT
2003	OS	FL0314C1	T7054	HEPATOPANC	LIPID	55.35		PCTDRYWT
2003	OS	FL0314C2	T7055	HEPATOPANC	LIPID	63.69		PCTDRYWT
2003	OS	FL0314C3	T7056	HEPATOPANC	LIPID	49.26		PCTDRYWT

Table C-5. Lipid Data - Mussels 1991 – 2003.

Year	Station	Sample	Bottle	Fraction	Parameter	Value	Val Qual	Unit Code
1991	DIL	M91143957	M91143957	SOFT_TISSUE	LIPID	2.1		PCTDRYWT
1991	DIL	M91143958	M91143958	SOFT_TISSUE	LIPID	4.5		PCTDRYWT
1991	DIL	M91143959	M91143959	SOFT_TISSUE	LIPID	4.0		PCTDRYWT
1991	DIL	M91143960	M91143960	SOFT_TISSUE	LIPID	3.2		PCTDRYWT
1991	DIL	M91143961	M91143961	SOFT_TISSUE	LIPID	2.8		PCTDRYWT
1991	DIL	M91143962	M91143962	SOFT_TISSUE	LIPID	3.4		PCTDRYWT
1991	DIL	M91143963	M91143963	SOFT_TISSUE	LIPID	3.1		PCTDRYWT
1991	DIL	M91143964	M91143964	SOFT_TISSUE	LIPID	3.0		PCTDRYWT
1991	GL	M91143626	M91143626	SOFT_TISSUE	LIPID	4.4		PCTDRYWT
1991	GL	M91143627	M91143627	SOFT_TISSUE	LIPID	8.1		PCTDRYWT
1991	GL	M91143628	M91143628	SOFT_TISSUE	LIPID	4.7		PCTDRYWT
1991	GL	M91143629	M91143629	SOFT_TISSUE	LIPID	1.8		PCTDRYWT
1991	GL	M91143630	M91143630	SOFT_TISSUE	LIPID	3.9		PCTDRYWT
1991	GL	M91143631	M91143631	SOFT_TISSUE	LIPID	1.8		PCTDRYWT
1991	GL	M91143632	M91143632	SOFT_TISSUE	LIPID	2.4		PCTDRYWT
1991	GL	M91143633	M91143633	SOFT_TISSUE	LIPID	3.9		PCTDRYWT
1991	GL	M91143634	M91143634	SOFT_TISSUE	LIPID	8.4		PCTDRYWT
1991	GL	M91143635	M91143635	SOFT_TISSUE	LIPID	4.8		PCTDRYWT
1991	IH	M91143739	M91143739	SOFT_TISSUE	LIPID	7.9		PCTDRYWT
1991	IH	M91143740	M91143740	SOFT_TISSUE	LIPID	4.2		PCTDRYWT
1991	IH	M91143741	M91143741	SOFT_TISSUE	LIPID	6.8		PCTDRYWT
1991	IH	M91143742	M91143742	SOFT_TISSUE	LIPID	5.2		PCTDRYWT
1991	IH	M91143743	M91143743	SOFT_TISSUE	LIPID	4.7		PCTDRYWT
1992	DIL	M92164479	M92164479	SOFT_TISSUE	LIPID	4.4		PCTDRYWT
1992	DIL	M92164480	M92164480	SOFT_TISSUE	LIPID	5.5		PCTDRYWT
1992	DIL	M92164481	M92164481	SOFT_TISSUE	LIPID	4.8		PCTDRYWT
1992	DIL	M92164482	M92164482	SOFT_TISSUE	LIPID	5.8		PCTDRYWT
1992	DIL	M92164483	M92164483	SOFT_TISSUE	LIPID	4.8		PCTDRYWT
1992	DIL	M92164484	M92164484	SOFT_TISSUE	LIPID	3.6		PCTDRYWT
1992	DIL	M92164485	M92164485	SOFT_TISSUE	LIPID	4.6		PCTDRYWT
1992	DIL	M92164486	M92164486	SOFT_TISSUE	LIPID	7.5		PCTDRYWT
1992	GL	M92162679	M92162679	SOFT_TISSUE	LIPID	4.5		PCTDRYWT
1992	GL	M92162680	M92162680	SOFT_TISSUE	LIPID	3.6		PCTDRYWT
1992	GL	M92162681	M92162681	SOFT_TISSUE	LIPID	4.0		PCTDRYWT
1992	GL	M92162682	M92162682	SOFT_TISSUE	LIPID	4.4		PCTDRYWT
1992	GL	M92162683	M92162683	SOFT_TISSUE	LIPID	7.5		PCTDRYWT
1992	IH	M92164487	M92164487	SOFT_TISSUE	LIPID	5.7		PCTDRYWT
1992	IH	M92164488	M92164488	SOFT_TISSUE	LIPID	5.2		PCTDRYWT
1992	IH	M92164489	M92164489	SOFT_TISSUE	LIPID	4.1		PCTDRYWT
1992	IH	M92164490	M92164490	SOFT_TISSUE	LIPID	5.8		PCTDRYWT
1992	IH	M92164491	M92164491	SOFT_TISSUE	LIPID	4.6		PCTDRYWT
1992	OSM	M92164492	M92164492	SOFT_TISSUE	LIPID	5.4		PCTDRYWT
1992	OSM	M92164493	M92164493	SOFT_TISSUE	LIPID	3.8		PCTDRYWT
1992	OSM	M92164494	M92164494	SOFT_TISSUE	LIPID	4.7		PCTDRYWT
1992	OSM	M92164495	M92164495	SOFT_TISSUE	LIPID	3.3		PCTDRYWT

Table C-5. Lipid Data - Mussels 1991 – 2003.
(Continued)

Year	Station	Sample	Bottle	Fraction	Parameter	Value	Val Qual	Unit Code
1992	OSM	M92164496	M92164496	SOFT_TISSUE	LIPID	5.0		PCTDRYWT
1992	OSM	M92164497	M92164497	SOFT_TISSUE	LIPID	3.5		PCTDRYWT
1992	OSM	M92164498	M92164498	SOFT_TISSUE	LIPID	3.1		PCTDRYWT
1992	OSM	M92164499	M92164499	SOFT_TISSUE	LIPID	5.0		PCTDRYWT
1993	DIL	M93196384	M93196384	SOFT_TISSUE	LIPID	6.5	j	PCTDRYWT
1993	DIL	M93196385	M93196385	SOFT_TISSUE	LIPID	6.5	j	PCTDRYWT
1993	DIL	M93196386	M93196386	SOFT_TISSUE	LIPID	6.5	j	PCTDRYWT
1993	DIL	M93196387	M93196387	SOFT_TISSUE	LIPID	6.5	j	PCTDRYWT
1993	DIL	M93196388	M93196388	SOFT_TISSUE	LIPID	6.5	j	PCTDRYWT
1993	GL	M93188933	M93188933	SOFT_TISSUE	LIPID	8.0	j	PCTDRYWT
1993	GL	M93188934	M93188934	SOFT_TISSUE	LIPID	8.0	j	PCTDRYWT
1993	GL	M93188936	M93188936	SOFT_TISSUE	LIPID	8.0	j	PCTDRYWT
1993	GL	M93188937	M93188937	SOFT_TISSUE	LIPID	8.0	j	PCTDRYWT
1993	GL	M93188941	M93188941	SOFT_TISSUE	LIPID	8.0	v	PCT
1993	IH	M93196389	M93196389	SOFT_TISSUE	LIPID	5.3	j	PCTDRYWT
1993	IH	M93196390	M93196390	SOFT_TISSUE	LIPID	5.3	j	PCTDRYWT
1993	IH	M93196391	M93196391	SOFT_TISSUE	LIPID	5.3	j	PCTDRYWT
1993	IH	M93196392	M93196392	SOFT_TISSUE	LIPID	5.3	j	PCTDRYWT
1993	OSM	M93196376	M93196376	SOFT_TISSUE	LIPID	7.1	j	PCTDRYWT
1993	OSM	M93196377	M93196377	SOFT_TISSUE	LIPID	7.1	j	PCTDRYWT
1993	OSM	M93196378	M93196378	SOFT_TISSUE	LIPID	7.1	j	PCTDRYWT
1993	OSM	M93196379	M93196379	SOFT_TISSUE	LIPID	7.1	j	PCTDRYWT
1993	OSM	M93196380	M93196380	SOFT_TISSUE	LIPID	7.1	j	PCTDRYWT
1993	OSM	M93196381	M93196381	SOFT_TISSUE	LIPID	7.1	j	PCTDRYWT
1993	OSM	M93196382	M93196382	SOFT_TISSUE	LIPID	7.1	j	PCTDRYWT
1993	OSM	M93196383	M93196383	SOFT_TISSUE	LIPID	7.1	j	PCTDRYWT
1993	OSM	M93203265R	M93203265R	SOFT_TISSUE	LIPID	7.1	j	PCTDRYWT
1993	OSM	M93203266R	M93203266R	SOFT_TISSUE	LIPID	7.1	j	PCTDRYWT
1993	OSM	M93203279	M93203279	SOFT_TISSUE	LIPID	7.1	j	PCTDRYWT
1994	DIL	M94233366	M94233366	SOFT_TISSUE	LIPID	4.4		PCTDRYWT
1994	DIL	M94233367	M94233367	SOFT_TISSUE	LIPID	5.2		PCTDRYWT
1994	DIL	M94233368	M94233368	SOFT_TISSUE	LIPID	5.2		PCTDRYWT
1994	DIL	M94233369	M94233369	SOFT_TISSUE	LIPID	5.2		PCTDRYWT
1994	GL	M94225475	M94225475	SOFT_TISSUE	LIPID	3.3		PCTDRYWT
1994	GL	M94225476	M94225476	SOFT_TISSUE	LIPID	4.6		PCTDRYWT
1994	GL	M94225477	M94225477	SOFT_TISSUE	LIPID	5.0		PCTDRYWT
1994	GL	M94225478	M94225478	SOFT_TISSUE	LIPID	4.0		PCTDRYWT
1994	IH	M94233371	M94233371	SOFT_TISSUE	LIPID	4.8		PCTDRYWT
1994	IH	M94233372	M94233372	SOFT_TISSUE	LIPID	6.6		PCTDRYWT
1994	IH	M94233373	M94233373	SOFT_TISSUE	LIPID	5.1		PCTDRYWT
1994	OSM	M94233376	M94233376	SOFT_TISSUE	LIPID	3.6		PCTDRYWT
1994	OSM	M94233377	M94233377	SOFT_TISSUE	LIPID	4.7		PCTDRYWT
1994	OSM	M94233378	M94233378	SOFT_TISSUE	LIPID	5.2		PCTDRYWT

Table C-5. Lipid Data - Mussels 1991 – 2003.
(Continued)

Year	Station	Sample	Bottle	Fraction	Parameter	Value	Val Qual	Unit Code
1994	OSM	M94233379	M94233379	SOFT_TISSUE	LIPID	4.1		PCTDRYWT
1994	OSM	M94233381	M94233381	SOFT_TISSUE	LIPID	6.5		PCTDRYWT
1994	OSM	M94233382	M94233382	SOFT_TISSUE	LIPID	6.4		PCTDRYWT
1994	OSM	M94233383	M94233383	SOFT_TISSUE	LIPID	8.1		PCTDRYWT
1994	OSM	M94233384	M94233384	SOFT_TISSUE	LIPID	5.7		PCTDRYWT
1995	DIL	M9511D1H7TC1	M9511D1H7TC1	SOFT_TISSUE	LIPID	10.2		PCTDRYWT
1995	DIL	M9511D1H7TC2	M9511D1H7TC2	SOFT_TISSUE	LIPID	11.9		PCTDRYWT
1995	DIL	M9511D1H7TC3	M9511D1H7TC3	SOFT_TISSUE	LIPID	11.6		PCTDRYWT
1995	DIL	M9511D1H7TC4	M9511D1H7TC4	SOFT_TISSUE	LIPID	11.0		PCTDRYWT
1995	DIL	M9511D1H7TC5	M9511D1H7TC5	SOFT_TISSUE	LIPID	11.5		PCTDRYWT
1995	GL	M9511H7TC1	M9511H7TC1	SOFT_TISSUE	LIPID	9.2		PCTDRYWT
1995	GL	M9511H7TC2	M9511H7TC2	SOFT_TISSUE	LIPID	8.1		PCTDRYWT
1995	GL	M9511H7TC3	M9511H7TC3	SOFT_TISSUE	LIPID	8.6		PCTDRYWT
1995	GL	M9511H7TC4	M9511H7TC4	SOFT_TISSUE	LIPID	8.2		PCTDRYWT
1995	GL	M9511H7TC5	M9511H7TC5	SOFT_TISSUE	LIPID	9.6		PCTDRYWT
1995	IH	M9511D6H7TC1	M9511D6H7TC1	SOFT_TISSUE	LIPID	10.0		PCTDRYWT
1995	IH	M9511D6H7TC2	M9511D6H7TC2	SOFT_TISSUE	LIPID	10.1		PCTDRYWT
1995	IH	M9511D6H7TC3	M9511D6H7TC3	SOFT_TISSUE	LIPID	10.4		PCTDRYWT
1995	IH	M9511D6H7TC4	M9511D6H7TC4	SOFT_TISSUE	LIPID	10.2		PCTDRYWT
1995	IH	M9511D6H7TC5	M9511D6H7TC5	SOFT_TISSUE	LIPID	8.5		PCTDRYWT
1996	DIL	M9611D1H7TC1	M9611D1H7TC1	SOFT_TISSUE	LIPID	9.0		PCTDRYWT
1996	DIL	M9611D1H7TC2	M9611D1H7TC2	SOFT_TISSUE	LIPID	15.0		PCTDRYWT
1996	DIL	M9611D1H7TC3	M9611D1H7TC3	SOFT_TISSUE	LIPID	13.4		PCTDRYWT
1996	DIL	M9611D1H7TC4	M9611D1H7TC4	SOFT_TISSUE	LIPID	14.9		PCTDRYWT
1996	DIL	M9611D1H7TC5	M9611D1H7TC5	SOFT_TISSUE	LIPID	16.7		PCTDRYWT
1996	GL	M9611H7TC1	M9611H7TC1	SOFT_TISSUE	LIPID	7.1		PCTDRYWT
1996	GL	M9611H7TC2	M9611H7TC2	SOFT_TISSUE	LIPID	11.6		PCTDRYWT
1996	GL	M9611H7TC3	M9611H7TC3	SOFT_TISSUE	LIPID	6.0		PCTDRYWT
1996	IH	M9611D6H7TC1	M9611D6H7TC1	SOFT_TISSUE	LIPID	8.7		PCTDRYWT
1996	IH	M9611D6H7TC2	M9611D6H7TC2	SOFT_TISSUE	LIPID	10.3		PCTDRYWT
1996	IH	M9611D6H7TC3	M9611D6H7TC3	SOFT_TISSUE	LIPID	10.9		PCTDRYWT
1996	IH	M9611D6H7TC4	M9611D6H7TC4	SOFT_TISSUE	LIPID	8.9		PCTDRYWT
1996	IH	M9611D6H7TC5	M9611D6H7TC5	SOFT_TISSUE	LIPID	11.4		PCTDRYWT
1996	OSM	M9611D4H7TC1	M9611D4H7TC1	SOFT_TISSUE	LIPID	8.8		PCTDRYWT
1996	OSM	M9611D4H7TC2	M9611D4H7TC2	SOFT_TISSUE	LIPID	10.5		PCTDRYWT
1996	OSM	M9611D4H7TC3	M9611D4H7TC3	SOFT_TISSUE	LIPID	12.2		PCTDRYWT
1996	OSM	M9611D4H7TC4	M9611D4H7TC4	SOFT_TISSUE	LIPID	10.4		PCTDRYWT
1996	OSM	M9611D4H7TC5	M9611D4H7TC5	SOFT_TISSUE	LIPID	10.9		PCTDRYWT
1997	DIL	M9711D1H7TC1	M9711D1H7TC1	SOFT_TISSUE	LIPID	9.3		PCTDRYWT
1997	DIL	M9711D1H7TC2	M9711D1H7TC2	SOFT_TISSUE	LIPID	9.7		PCTDRYWT
1997	DIL	M9711D1H7TC3	M9711D1H7TC3	SOFT_TISSUE	LIPID	7.8		PCTDRYWT
1997	DIL	M9711D1H7TC4	M9711D1H7TC4	SOFT_TISSUE	LIPID	8.6		PCTDRYWT
1997	DIL	M9711D1H7TC5	M9711D1H7TC5	SOFT_TISSUE	LIPID	9.1		PCTDRYWT

Table C-5. Lipid Data - Mussels 1991 – 2003.
(Continued)

Year	Station	Sample	Bottle	Fraction	Parameter	Value	Val Qual	Unit Code
1997	GL	M9711H7TC1	M9711H7TC1	SOFT_TISSUE	LIPID	8.2		PCTDRYWT
1997	GL	M9711H7TC2	M9711H7TC2	SOFT_TISSUE	LIPID	8.1		PCTDRYWT
1997	GL	M9711H7TC3	M9711H7TC3	SOFT_TISSUE	LIPID	8.6		PCTDRYWT
1997	GL	M9711H7TC4	M9711H7TC4	SOFT_TISSUE	LIPID	8.6		PCTDRYWT
1997	GL	M9711H7TC5	M9711H7TC5	SOFT_TISSUE	LIPID	9.1		PCTDRYWT
1997	IH	M9711D6H7TC1	M9711D6H7TC1	SOFT_TISSUE	LIPID	8.8		PCTDRYWT
1997	IH	M9711D6H7TC2	M9711D6H7TC2	SOFT_TISSUE	LIPID	7.7		PCTDRYWT
1997	IH	M9711D6H7TC3	M9711D6H7TC3	SOFT_TISSUE	LIPID	7.5		PCTDRYWT
1997	IH	M9711D6H7TC4	M9711D6H7TC4	SOFT_TISSUE	LIPID	7.8		PCTDRYWT
1997	IH	M9711D6H7TC5	M9711D6H7TC5	SOFT_TISSUE	LIPID	7.5		PCTDRYWT
1997	OSM	M9711D4H7TC1	M9711D4H7TC1	SOFT_TISSUE	LIPID	7.2		PCTDRYWT
1997	OSM	M9711D4H7TC2	M9711D4H7TC2	SOFT_TISSUE	LIPID	8.9		PCTDRYWT
1997	OSM	M9711D4H7TC3	M9711D4H7TC3	SOFT_TISSUE	LIPID	9.6		PCTDRYWT
1997	OSM	M9711D4H7TC4	M9711D4H7TC4	SOFT_TISSUE	LIPID	8.0		PCTDRYWT
1997	OSM	M9711D4H7TC5	M9711D4H7TC5	SOFT_TISSUE	LIPID	9.0		PCTDRYWT
1998	GL	FM9812GVX01	VX01	SOFT_TISSUE	LIPID	6.0		PCTDRYWT
1998	GL	FM9812GVX02	VX02	SOFT_TISSUE	LIPID	6.0		PCTDRYWT
1998	GL	FM9812GVX03	VX03	SOFT_TISSUE	LIPID	5.0		PCTDRYWT
1998	GL	FM9812GVX04	VX04	SOFT_TISSUE	LIPID	6.0		PCTDRYWT
1998	GL	FM9812GVX05	VX05	SOFT_TISSUE	LIPID	6.0		PCTDRYWT
1998	SA	FM9811SVX06	VX06	SOFT_TISSUE	LIPID	8.6		PCTDRYWT
1998	DIL	FM9821GVX17	VX17	SOFT_TISSUE	LIPID	7.0		PCTDRYWT
1998	DIL	FM9821GVX18	VX18	SOFT_TISSUE	LIPID	8.0		PCTDRYWT
1998	DIL	FM9821GVX19	VX19	SOFT_TISSUE	LIPID	6.0		PCTDRYWT
1998	DIL	FM9821GVX20	VX20	SOFT_TISSUE	LIPID	7.0		PCTDRYWT
1998	DIL	FM9821GVX21	VX21	SOFT_TISSUE	LIPID	7.0		PCTDRYWT
1998	OSM	FM9822GVX22	VX22	SOFT_TISSUE	LIPID	7.0		PCTDRYWT
1998	OSM	FM9822GVX23	VX23	SOFT_TISSUE	LIPID	7.0		PCTDRYWT
1998	OSM	FM9822GVX24	VX24	SOFT_TISSUE	LIPID	8.0		PCTDRYWT
1998	OSM	FM9822GVX25	VX25	SOFT_TISSUE	LIPID	9.0		PCTDRYWT
1998	OSM	FM9822GVX26	VX26	SOFT_TISSUE	LIPID	6.0		PCTDRYWT
1998	OSM	FM9822GVX27	VX27	SOFT_TISSUE	LIPID	7.0		PCTDRYWT
1998	OSM	FM9822GVX28	VX28	SOFT_TISSUE	LIPID	8.0		PCTDRYWT
1998	OSM	FM9822GVX29	VX29	SOFT_TISSUE	LIPID	7.0		PCTDRYWT
1998	CCB	FM9833GVX30	VX30	SOFT_TISSUE	LIPID	8.0		PCTDRYWT
1998	CCB	FM9833GVX31	VX31	SOFT_TISSUE	LIPID	9.0		PCTDRYWT
1998	CCB	FM9833GVX32	VX32	SOFT_TISSUE	LIPID	8.0		PCTDRYWT
1998	CCB	FM9833GVX33	VX33	SOFT_TISSUE	LIPID	8.0		PCTDRYWT
1998	CCB	FM9833GVX34	VX34	SOFT_TISSUE	LIPID	8.0		PCTDRYWT
1998	CCB	FM9833GVX35	VX35	SOFT_TISSUE	LIPID	9.0		PCTDRYWT
1998	CCB	FM9833GVX36	VX36	SOFT_TISSUE	LIPID	8.0		PCTDRYWT
1998	CCB	FM9833GVX37	VX37	SOFT_TISSUE	LIPID	8.0		PCTDRYWT
1998	IH	FM9832GVX12	VX12	SOFT_TISSUE	LIPID	6.0		PCTDRYWT

Table C-5. Lipid Data - Mussels 1991 – 2003.
(Continued)

Year	Station	Sample	Bottle	Fraction	Parameter	Value	Val Qual	Unit Code
1998	IH	FM9832GVX13	VX13	SOFT_TISSUE	LIPID	6.0		PCTDRYWT
1998	IH	FM9832GVX14	VX14	SOFT_TISSUE	LIPID	6.0		PCTDRYWT
1998	IH	FM9832GVX15	VX15	SOFT_TISSUE	LIPID	8.0		PCTDRYWT
1998	IH	FM9832GVX16	VX16	SOFT_TISSUE	LIPID	6.0		PCTDRYWT
1999	GL	FM9912GXD74	XD74	SOFT_TISSUE	LIPID	7.8		PCTDRYWT
1999	GL	FM9912GXD75	XD75	SOFT_TISSUE	LIPID	5.6		PCTDRYWT
1999	GL	FM9912GXD76	XD76	SOFT_TISSUE	LIPID	7.5		PCTDRYWT
1999	GL	FM9912GXD77	XD77	SOFT_TISSUE	LIPID	6.4		PCTDRYWT
1999	GL	FM9912GXD78	XD78	SOFT_TISSUE	LIPID	5.6		PCTDRYWT
1999	CCB	FM9933GXD92	XD92	SOFT_TISSUE	LIPID	11.3		PCTDRYWT
1999	CCB	FM9933GXD93	XD93	SOFT_TISSUE	LIPID	13.8		PCTDRYWT
1999	CCB	FM9933GXD94	XD94	SOFT_TISSUE	LIPID	12.1		PCTDRYWT
1999	CCB	FM9933GXD95	XD95	SOFT_TISSUE	LIPID	10.5		PCTDRYWT
1999	CCB	FM9933GXD96	XD96	SOFT_TISSUE	LIPID	9.9		PCTDRYWT
1999	CCB	FM9933GXD97	XD97	SOFT_TISSUE	LIPID	11.5		PCTDRYWT
1999	CCB	FM9933GXD98	XD98	SOFT_TISSUE	LIPID	11.9		PCTDRYWT
1999	CCB	FM9933GXD99	XD99	SOFT_TISSUE	LIPID	14.2		PCTDRYWT
1999	IH	FM9931GXD79	XD79	SOFT_TISSUE	LIPID	5.6		PCTDRYWT
1999	IH	FM9931GXD80	XD80	SOFT_TISSUE	LIPID	6.2		PCTDRYWT
1999	IH	FM9931GXD81	XD81	SOFT_TISSUE	LIPID	6.0		PCTDRYWT
1999	IH	FM9931GXD82	XD82	SOFT_TISSUE	LIPID	6.4		PCTDRYWT
1999	IH	FM9931GXD83	XD83	SOFT_TISSUE	LIPID	6.5		PCTDRYWT
1999	OSM	FM9932GXD84	XD84	SOFT_TISSUE	LIPID	8.7		PCTDRYWT
1999	OSM	FM9932GXD85	XD85	SOFT_TISSUE	LIPID	8.0		PCTDRYWT
1999	OSM	FM9932GXD86	XD86	SOFT_TISSUE	LIPID	6.9		PCTDRYWT
1999	OSM	FM9932GXD87	XD87	SOFT_TISSUE	LIPID	7.9		PCTDRYWT
1999	OSM	FM9932GXD88	XD88	SOFT_TISSUE	LIPID	9.0		PCTDRYWT
1999	OSM	FM9932GXD89	XD89	SOFT_TISSUE	LIPID	8.4		PCTDRYWT
1999	OSM	FM9932GXD90	XD90	SOFT_TISSUE	LIPID	8.3		PCTDRYWT
1999	OSM	FM9932GXD91	XD91	SOFT_TISSUE	LIPID	8.0		PCTDRYWT
2000	RP	FM001RPYE67	YE67	SOFT_TISSUE	LIPID	4.9		PCTDRYWT
2000	RP	FM001RPYE68	YE68	SOFT_TISSUE	LIPID	5.4		PCTDRYWT
2000	RP	FM001RPYE69	YE69	SOFT_TISSUE	LIPID	4.7		PCTDRYWT
2000	RP	FM001RPYE70	YE70	SOFT_TISSUE	LIPID	5.2		PCTDRYWT
2000	RP	FM001RPYE71	YE71	SOFT_TISSUE	LIPID	5.4		PCTDRYWT
2000	DIL	FM0031YE77	YE77	SOFT_TISSUE	LIPID	6.6		PCTDRYWT
2000	DIL	FM0031YE78	YE78	SOFT_TISSUE	LIPID	7.6		PCTDRYWT
2000	DIL	FM0031YE79	YE79	SOFT_TISSUE	LIPID	7.5		PCTDRYWT
2000	DIL	FM0031YE80	YE80	SOFT_TISSUE	LIPID	7.6		PCTDRYWT
2000	DIL	FM0031YE81	YE81	SOFT_TISSUE	LIPID	7.7		PCTDRYWT
2000	IH	FM0036YE72	YE72	SOFT_TISSUE	LIPID	8.6		PCTDRYWT
2000	IH	FM0036YE73	YE73	SOFT_TISSUE	LIPID	8.0		PCTDRYWT
2000	IH	FM0036YE74	YE74	SOFT_TISSUE	LIPID	7.9		PCTDRYWT
2000	IH	FM0036YE75	YE75	SOFT_TISSUE	LIPID	8.2		PCTDRYWT

Table C-5. Lipid Data - Mussels 1991 – 2003.
(Continued)

Year	Station	Sample	Bottle	Fraction	Parameter	Value	Val Qual	Unit Code
2000	IH	FM0036YE76	YE76	SOFT_TISSUE	LIPID	8.6		PCTDRYWT
2000	OSM	FM0034YE82	YE82	SOFT_TISSUE	LIPID	6.0		PCTDRYWT
2000	OSM	FM0034YE83	YE83	SOFT_TISSUE	LIPID	7.5		PCTDRYWT
2000	OSM	FM0034YE84	YE84	SOFT_TISSUE	LIPID	7.1		PCTDRYWT
2000	OSM	FM0034YE85	YE85	SOFT_TISSUE	LIPID	6.5		PCTDRYWT
2000	OSM	FM0034YE86	YE86	SOFT_TISSUE	LIPID	7.6		PCTDRYWT
2000	OSM	FM0034YE87	YE87	SOFT_TISSUE	LIPID	7.4		PCTDRYWT
2000	OSM	FM0034YE88	YE88	SOFT_TISSUE	LIPID	7.4		PCTDRYWT
2000	OSM	FM0034YE89	YE89	SOFT_TISSUE	LIPID	7.6		PCTDRYWT
2001	RP	FM011ZA69	ZA69	SOFT_TISSUE	LIPID	5.0		PCTDRYWT
2001	RP	FM011ZA70	ZA70	SOFT_TISSUE	LIPID	6.3		PCTDRYWT
2001	RP	FM011ZA71	ZA71	SOFT_TISSUE	LIPID	6.1		PCTDRYWT
2001	RP	FM011ZA72	ZA72	SOFT_TISSUE	LIPID	5.2		PCTDRYWT
2001	RP	FM011ZA73	ZA73	SOFT_TISSUE	LIPID	4.9		PCTDRYWT
2001	CCB	FM011ZH80	ZH80	SOFT_TISSUE	LIPID	3.1		PCTDRYWT
2001	CCB	FM011ZH81	ZH81	SOFT_TISSUE	LIPID	7.0		PCTDRYWT
2001	CCB	FM011ZH82	ZH82	SOFT_TISSUE	LIPID	11.9		PCTDRYWT
2001	CCB	FM011ZH83	ZH83	SOFT_TISSUE	LIPID	10.3		PCTDRYWT
2001	CCB	FM011ZH84	ZH84	SOFT_TISSUE	LIPID	10.5		PCTDRYWT
2001	CCB	FM011ZH85	ZH85	SOFT_TISSUE	LIPID	16.7		PCTDRYWT
2001	CCB	FM011ZH86	ZH86	SOFT_TISSUE	LIPID	9.7		PCTDRYWT
2001	CCB	FM011ZH87	ZH87	SOFT_TISSUE	LIPID	5.6		PCTDRYWT
2001	DIL	FM011ZH67	ZH67	SOFT_TISSUE	LIPID	7.4		PCTDRYWT
2001	DIL	FM011ZH68	ZH68	SOFT_TISSUE	LIPID	7.4		PCTDRYWT
2001	DIL	FM011ZH69	ZH69	SOFT_TISSUE	LIPID	7.6		PCTDRYWT
2001	DIL	FM011ZH70	ZH70	SOFT_TISSUE	LIPID	6.5		PCTDRYWT
2001	DIL	FM011ZH71	ZH71	SOFT_TISSUE	LIPID	6.8		PCTDRYWT
2001	IH	FM011ZH62	ZH62	SOFT_TISSUE	LIPID	5.7		PCTDRYWT
2001	IH	FM011ZH63	ZH63	SOFT_TISSUE	LIPID	5.0		PCTDRYWT
2001	IH	FM011ZH64	ZH64	SOFT_TISSUE	LIPID	5.2		PCTDRYWT
2001	IH	FM011ZH65	ZH65	SOFT_TISSUE	LIPID	6.3		PCTDRYWT
2001	IH	FM011ZH66	ZH66	SOFT_TISSUE	LIPID	4.5		PCTDRYWT
2001	LNB	FM011ZP19	ZP19	SOFT_TISSUE	LIPID	6.8		PCTDRYWT
2001	LNB	FM011ZP20	ZP20	SOFT_TISSUE	LIPID	4.8		PCTDRYWT
2001	LNB	FM011ZP21	ZP21	SOFT_TISSUE	LIPID	7.9		PCTDRYWT
2001	LNB	FM011ZP22	ZP22	SOFT_TISSUE	LIPID	6.3		PCTDRYWT
2001	LNB	FM011ZP23	ZP23	SOFT_TISSUE	LIPID	8.8		PCTDRYWT
2001	LNB	FM011ZP24	ZP24	SOFT_TISSUE	LIPID	7.3		PCTDRYWT
2001	LNB	FM011ZP25	ZP25	SOFT_TISSUE	LIPID	6.6		PCTDRYWT
2001	LNB	FM011ZP26	ZP26	SOFT_TISSUE	LIPID	6.9		PCTDRYWT
2001	OS-M1	FM011ZP27	ZP27	SOFT_TISSUE	LIPID	6.5		PCTDRYWT
2001	OS-M1	FM011ZP28	ZP28	SOFT_TISSUE	LIPID	6.6		PCTDRYWT
2001	OS-M1	FM011ZP29	ZP29	SOFT_TISSUE	LIPID	7.3		PCTDRYWT
2001	OS-M1	FM011ZP30	ZP30	SOFT_TISSUE	LIPID	7.1		PCTDRYWT

Table C-5. Lipid Data - Mussels 1991 – 2003.
(Continued)

Year	Station	Sample	Bottle	Fraction	Parameter	Value	Val Qual	Unit Code
2001	OS-M1	FM011ZP31	ZP31	SOFT_TISSUE	LIPID	8.1		PCTDRYWT
2001	OS-M1	FM011ZP32	ZP32	SOFT_TISSUE	LIPID	7.0		PCTDRYWT
2001	OS-M1	FM011ZP33	ZP33	SOFT_TISSUE	LIPID	9.5		PCTDRYWT
2001	OS-M1	FM011ZP34	ZP34	SOFT_TISSUE	LIPID	8.1		PCTDRYWT
2001	OSR	FM011ZH72	ZH72	SOFT_TISSUE	LIPID	15.0		PCTDRYWT
2001	OSR	FM011ZH73	ZH73	SOFT_TISSUE	LIPID	8.6		PCTDRYWT
2001	OSR	FM011ZH74	ZH74	SOFT_TISSUE	LIPID	4.6		PCTDRYWT
2001	OSR	FM011ZH75	ZH75	SOFT_TISSUE	LIPID	10.6		PCTDRYWT
2001	OSR	FM011ZH76	ZH76	SOFT_TISSUE	LIPID	9.1		PCTDRYWT
2001	OSR	FM011ZH77	ZH77	SOFT_TISSUE	LIPID	1.7		PCTDRYWT
2001	OSR	FM011ZH78	ZH78	SOFT_TISSUE	LIPID	12.5		PCTDRYWT
2001	OSR	FM011ZH79	ZH79	SOFT_TISSUE	LIPID	7.0		PCTDRYWT
2002	SP	FM021V8116	V8116	SOFT_TISSUE	LIPID	6.7		PCTDRYWT
2002	SP	FM021V8117	V8117	SOFT_TISSUE	LIPID	7.0		PCTDRYWT
2002	SP	FM021V8118	V8118	SOFT_TISSUE	LIPID	7.2		PCTDRYWT
2002	SP	FM021V8119	V8119	SOFT_TISSUE	LIPID	5.1		PCTDRYWT
2002	SP	FM021V8120	V8120	SOFT_TISSUE	LIPID	7.5		PCTDRYWT
2002	CCB	FM021V8143	V8143	SOFT_TISSUE	LIPID	10.4		PCTDRYWT
2002	CCB	FM021V8144	V8144	SOFT_TISSUE	LIPID	7.3		PCTDRYWT
2002	CCB	FM021V8145	V8145	SOFT_TISSUE	LIPID	6.5		PCTDRYWT
2002	CCB	FM021V8146	V8146	SOFT_TISSUE	LIPID	5.4		PCTDRYWT
2002	DIL	FM021V8126	V8126	SOFT_TISSUE	LIPID	7.6		PCTDRYWT
2002	DIL	FM021V8127	V8127	SOFT_TISSUE	LIPID	7.0		PCTDRYWT
2002	DIL	FM021V8128	V8128	SOFT_TISSUE	LIPID	6.9		PCTDRYWT
2002	DIL	FM021V8129	V8129	SOFT_TISSUE	LIPID	6.2		PCTDRYWT
2002	DIL	FM021V8130	V8130	SOFT_TISSUE	LIPID	7.0		PCTDRYWT
2002	IH	FM021V8121	V8121	SOFT_TISSUE	LIPID	5.8		PCTDRYWT
2002	IH	FM021V8122	V8122	SOFT_TISSUE	LIPID	7.0		PCTDRYWT
2002	IH	FM021V8123	V8123	SOFT_TISSUE	LIPID	7.9		PCTDRYWT
2002	IH	FM021V8124	V8124	SOFT_TISSUE	LIPID	8.3		PCTDRYWT
2002	IH	FM021V8125	V8125	SOFT_TISSUE	LIPID	10.5		PCTDRYWT
2002	LNB	FM021V8139	V8139	SOFT_TISSUE	LIPID	8.5		PCTDRYWT
2002	LNB	FM021V8140	V8140	SOFT_TISSUE	LIPID	7.3		PCTDRYWT
2002	LNB	FM021V8141	V8141	SOFT_TISSUE	LIPID	7.5		PCTDRYWT
2002	LNB	FM021V8142	V8142	SOFT_TISSUE	LIPID	8.3		PCTDRYWT
2002	OS-M1	FM021V8131	V8131	SOFT_TISSUE	LIPID	8.0		PCTDRYWT
2002	OS-M1	FM021V8132	V8132	SOFT_TISSUE	LIPID	7.4		PCTDRYWT
2002	OS-M1	FM021V8133	V8133	SOFT_TISSUE	LIPID	8.3		PCTDRYWT
2002	OS-M1	FM021V8134	V8134	SOFT_TISSUE	LIPID	7.8		PCTDRYWT
2002	OS-M2	FM021V8135	V8135	SOFT_TISSUE	LIPID	7.8		PCTDRYWT
2002	OS-M2	FM021V8136	V8136	SOFT_TISSUE	LIPID	9.2		PCTDRYWT
2002	OS-M5	FM021V8137	V8137	SOFT_TISSUE	LIPID	8.8		PCTDRYWT
2002	OS-M5	FM021V8138	V8138	SOFT_TISSUE	LIPID	7.4		PCTDRYWT

Table C-5. Lipid Data - Mussels 1991 – 2003.
(Continued)

Year	Station	Sample	Bottle	Fraction	Parameter	Value	Val Qual	Unit Code
2003	SP	FM031T5665	T5665	SOFT_TISSUE	LIPID	9.0		PCTDRYWT
2003	SP	FM031T5666	T5666	SOFT_TISSUE	LIPID	10.3		PCTDRYWT
2003	SP	FM031T5667	T5667	SOFT_TISSUE	LIPID	9.7		PCTDRYWT
2003	SP	FM031T5668	T5668	SOFT_TISSUE	LIPID	9.6		PCTDRYWT
2003	SP	FM031T5669	T5669	SOFT_TISSUE	LIPID	8.6		PCTDRYWT
2003	CCB	FM031T6988	T6988	SOFT_TISSUE	LIPID	10.7		PCTDRYWT
2003	CCB	FM031T6989	T6989	SOFT_TISSUE	LIPID	10.8		PCTDRYWT
2003	CCB	FM031T6990	T6990	SOFT_TISSUE	LIPID	10.0		PCTDRYWT
2003	CCB	FM031T6991	T6991	SOFT_TISSUE	LIPID	9.9		PCTDRYWT
2003	DIL	FM031T6971	T6971	SOFT_TISSUE	LIPID	6.6		PCTDRYWT
2003	DIL	FM031T6972	T6972	SOFT_TISSUE	LIPID	7.6		PCTDRYWT
2003	DIL	FM031T6973	T6973	SOFT_TISSUE	LIPID	7.8		PCTDRYWT
2003	DIL	FM031T6974	T6974	SOFT_TISSUE	LIPID	6.8		PCTDRYWT
2003	DIL	FM031T6975	T6975	SOFT_TISSUE	LIPID	8.8		PCTDRYWT
2003	IH	FM031T6966	T6966	SOFT_TISSUE	LIPID	7.2		PCTDRYWT
2003	IH	FM031T6967	T6967	SOFT_TISSUE	LIPID	5.8		PCTDRYWT
2003	IH	FM031T6968	T6968	SOFT_TISSUE	LIPID	6.7		PCTDRYWT
2003	IH	FM031T6969	T6969	SOFT_TISSUE	LIPID	7.7		PCTDRYWT
2003	IH	FM031T6970	T6970	SOFT_TISSUE	LIPID	5.8		PCTDRYWT
2003	LNB	FM031T6984	T6984	SOFT_TISSUE	LIPID	9.6		PCTDRYWT
2003	LNB	FM031T6985	T6985	SOFT_TISSUE	LIPID	10.4		PCTDRYWT
2003	LNB	FM031T6986	T6986	SOFT_TISSUE	LIPID	10.7		PCTDRYWT
2003	LNB	FM031T6987	T6987	SOFT_TISSUE	LIPID	9.8		PCTDRYWT
2003	OS-M1	FM031T6976	T6976	SOFT_TISSUE	LIPID	8.1		PCTDRYWT
2003	OS-M1	FM031T6977	T6977	SOFT_TISSUE	LIPID	9.6		PCTDRYWT
2003	OS-M1	FM031T6978	T6978	SOFT_TISSUE	LIPID	9.5		PCTDRYWT
2003	OS-M1	FM031T6979	T6979	SOFT_TISSUE	LIPID	6.9		PCTDRYWT
2003	OS-M4	FM031T6980	T6980	SOFT_TISSUE	LIPID	9.5		PCTDRYWT
2003	OS-M4	FM031T6981	T6981	SOFT_TISSUE	LIPID	8.6		PCTDRYWT
2003	OS-M6	FM031T6982	T6982	SOFT_TISSUE	LIPID	8.3		PCTDRYWT
2003	OS-M6	FM031T6983	T6983	SOFT_TISSUE	LIPID	9.6		PCTDRYWT

Table C-6. Percent Dry Weight - Flounder Fillet 1992 – 2003.

Year	Station	Sample	Bottle	Fraction	Parameter	Value	Val Qual	Unit Code
1992	BS	92-253	92-253M	FILLET	PCTDRYWT	20.0		PCT
1992	BS	92-257	92-257M	FILLET	PCTDRYWT	19.3		PCT
1992	BS	92-258	92-258M	FILLET	PCTDRYWT	22.5		PCT
1992	BS	92-25C	92-25CM	FILLET	PCTDRYWT	19.2		PCT
1992	DIF	92-353	92-353M	FILLET	PCTDRYWT	18.1		PCT
1992	DIF	92-354	92-354M	FILLET	PCTDRYWT	18.5		PCT
1992	DIF	92-359	92-359M	FILLET	PCTDRYWT	21.3		PCT
1992	DIF	92-35C	92-35CM	FILLET	PCTDRYWT	20.6		PCT
1992	ECCB	92-451	92-451M	FILLET	PCTDRYWT	18.4		PCT
1992	ECCB	92-452	92-452M	FILLET	PCTDRYWT	22.2		PCT
1992	ECCB	92-456	92-456M	FILLET	PCTDRYWT	19.8		PCT
1992	ECCB	92-45C	92-45CM	FILLET	PCTDRYWT	20.3		PCT
1992	NB	92-300	92-300M	FILLET	PCTDRYWT	21.1		PCT
1992	NB	92-307	92-307M	FILLET	PCTDRYWT	17.0		PCT
1992	NB	92-308	92-308M	FILLET	PCTDRYWT	19.5		PCT
1992	NB	92-30C	92-30CM	FILLET	PCTDRYWT	20.5		PCT
1992	OS	92-400	92-400M	FILLET	PCTDRYWT	17.3		PCT
1992	OS	92-401	92-401M	FILLET	PCTDRYWT	21.0		PCT
1992	OS	92-409	92-409M	FILLET	PCTDRYWT	18.9		PCT
1992	OS	92-40C	92-40CM	FILLET	PCTDRYWT	20.3		PCT
1993	DIF	F93010465	465SF	FILLET	PCTDRYWT	20.5		PCT
1993	DIF	F93010466	466SF	FILLET	PCTDRYWT	21.3		PCT
1993	DIF	F93010467	467SF	FILLET	PCTDRYWT	15.3		PCT
1993	DIF	F93010468	468SF	FILLET	PCTDRYWT	17.5		PCT
1993	DIF	F93010469	469SF	FILLET	PCTDRYWT	18.8		PCT
1993	DIF	F93010470	470SF	FILLET	PCTDRYWT	20.4		PCT
1993	DIF	F93010471	471SF	FILLET	PCTDRYWT	12.6		PCT
1993	DIF	F93010472	472SF	FILLET	PCTDRYWT	16.1		PCT
1993	DIF	F93010473	473SF	FILLET	PCTDRYWT	17.9		PCT
1993	DIF	F93010474	474SF	FILLET	PCTDRYWT	21.1		PCT
1993	ECCB	F93010625	625SF	FILLET	PCTDRYWT	14.7		PCT
1993	ECCB	F93010626	626SF	FILLET	PCTDRYWT	16.0		PCT
1993	ECCB	F93010627	627SF	FILLET	PCTDRYWT	19.2		PCT
1993	ECCB	F93010628	628SF	FILLET	PCTDRYWT	17.8		PCT
1993	ECCB	F93010629	629SF	FILLET	PCTDRYWT	17.4		PCT
1993	ECCB	F93010630	630SF	FILLET	PCTDRYWT	16.9		PCT
1993	ECCB	F93010631	631SF	FILLET	PCTDRYWT	19.5		PCT
1993	ECCB	F93010632	632SF	FILLET	PCTDRYWT	19.7		PCT
1993	ECCB	F93010633	633SF	FILLET	PCTDRYWT	16.3		PCT
1993	ECCB	F93010634	634SF	FILLET	PCTDRYWT	20.2		PCT
1993	OS	F93010565	565SF	FILLET	PCTDRYWT	19.4		PCT
1993	OS	F93010566	566SF	FILLET	PCTDRYWT	16.7		PCT
1993	OS	F93010567	567SF	FILLET	PCTDRYWT	21.2		PCT
1993	OS	F93010569	569SF	FILLET	PCTDRYWT	18.7		PCT
1993	OS	F93010570	570SF	FILLET	PCTDRYWT	18.3		PCT

Table C-6. Percent Dry Weight - Flounder Fillet 1992 – 2003.
(Continued)

Year	Station	Sample	Bottle	Fraction	Parameter	Value	Val Qual	Unit Code
1993	OS	F93010571	571SF	FILLET	PCTDRYWT	16.4		PCT
1993	OS	F93010572	572SF	FILLET	PCTDRYWT	17.2		PCT
1993	OS	F93010573	573SF	FILLET	PCTDRYWT	16.0		PCT
1993	OS	F93010574	574SF	FILLET	PCTDRYWT	17.6		PCT
1994	BS	FI301FLNDR	OU34	FILLET	PCTDRYWT	17.4		PCT
1994	BS	FI302FLNDR	OU35	FILLET	PCTDRYWT	17.6		PCT
1994	BS	FI303FLNDR	OU36	FILLET	PCTDRYWT	18.1		PCT
1994	DIF	FI101FLNDR	OU28	FILLET	PCTDRYWT	17.4		PCT
1994	DIF	FI102FLNDR	OU29	FILLET	PCTDRYWT	17.4		PCT
1994	DIF	FI103FLNDR	OU30	FILLET	PCTDRYWT	17.1		PCT
1994	ECCB	FI501FLNDR	OU40	FILLET	PCTDRYWT	19.0		PCT
1994	ECCB	FI502FLNDR	OU41	FILLET	PCTDRYWT	17.7		PCT
1994	ECCB	FI503FLNDR	OU42	FILLET	PCTDRYWT	17.7		PCT
1994	NB	FI201FLNDR	OU31	FILLET	PCTDRYWT	17.5		PCT
1994	NB	FI202FLNDR	OU32	FILLET	PCTDRYWT	17.3		PCT
1994	NB	FI203FLNDR	OU33	FILLET	PCTDRYWT	18.0		PCT
1994	OS	FI401FLNDR	OU37	FILLET	PCTDRYWT	18.6		PCT
1994	OS	FI402FLNDR	OU38	FILLET	PCTDRYWT	17.7		PCT
1994	OS	FI403FLNDR	OU39	FILLET	PCTDRYWT	17.1		PCT
1995	DIF	P95111000C1	P95111000TC1	FILLET	PCTDRYWT	17.1		PCT
1995	DIF	P95111000C2	P95111000TC2	FILLET	PCTDRYWT	16.6		PCT
1995	DIF	P95111000C3	P95111000TC3	FILLET	PCTDRYWT	17.4		PCT
1995	ECCB	P95115000C1	P95115000TC1	FILLET	PCTDRYWT	17.4		PCT
1995	ECCB	P95115000C2	P95115000TC2	FILLET	PCTDRYWT	18.0		PCT
1995	ECCB	P95115000C3	P95115000TC3	FILLET	PCTDRYWT	18.1		PCT
1995	OS	P95114000C1	P95114000TC1	FILLET	PCTDRYWT	17.9		PCT
1995	OS	P95114000C2	P95114000TC2	FILLET	PCTDRYWT	16.8		PCT
1995	OS	P95114000C3	P95114000TC3	FILLET	PCTDRYWT	17.5		PCT
1996	BS	P96113000C1	P96113000TC1	FILLET	PCTDRYWT	18.5		PCT
1996	BS	P96113000C2	P96113000TC2	FILLET	PCTDRYWT	18.5		PCT
1996	BS	P96113000C3	P96113000TC3	FILLET	PCTDRYWT	17.8		PCT
1996	DIF	P96111000C1	P96111000TC1	FILLET	PCTDRYWT	18.4		PCT
1996	DIF	P96111000C2	P96111000TC2	FILLET	PCTDRYWT	16.1		PCT
1996	DIF	P96111000C3	P96111000TC3	FILLET	PCTDRYWT	20.3		PCT
1996	ECCB	P96115000C1	P96115000TC1	FILLET	PCTDRYWT	16.7		PCT
1996	ECCB	P96115000C2	P96115000TC2	FILLET	PCTDRYWT	20.1		PCT
1996	ECCB	P96115000C3	P96115000TC3	FILLET	PCTDRYWT	18.0		PCT
1996	NB	P96112000C1	P96112000TC1	FILLET	PCTDRYWT	16.9		PCT
1996	NB	P96112000C2	P96112000TC2	FILLET	PCTDRYWT	18.9		PCT
1996	NB	P96112000C3	P96112000TC3	FILLET	PCTDRYWT	18.1		PCT
1996	OS	P96114000C1	P96114000TC1	FILLET	PCTDRYWT	18.4		PCT
1996	OS	P96114000C2	P96114000TC2	FILLET	PCTDRYWT	17.2		PCT
1996	OS	P96114000C3	P96114000TC3	FILLET	PCTDRYWT	21.9		PCT
1997	DIF	P97111000C1	P97111000TC1	FILLET	PCTDRYWT	17.9		PCT

Table C-6. Percent Dry Weight - Flounder Fillet 1992 – 2003.
(Continued)

Year	Station	Sample	Bottle	Fraction	Parameter	Value	Val Qual	Unit Code
1997	DIF	P97111000C2	P97111000TC2	FILLET	PCTDRYWT	17.7		PCT
1997	DIF	P97111000C3	P97111000TC3	FILLET	PCTDRYWT	17.6		PCT
1997	ECCB	P97115000C1	P97115000TC1	FILLET	PCTDRYWT	17.4		PCT
1997	ECCB	P97115000C2	P97115000TC2	FILLET	PCTDRYWT	18.1		PCT
1997	ECCB	P97115000C3	P97115000TC3	FILLET	PCTDRYWT	17.7		PCT
1997	OS	P97114000C1	P97114000TC1	FILLET	PCTDRYWT	18.3		PCT
1997	OS	P97114000C2	P97114000TC2	FILLET	PCTDRYWT	17.6		PCT
1997	OS	P97114000C3	P97114000TC3	FILLET	PCTDRYWT	17.0		PCT
1998	DIF	VQST11	VQ79	FILLET	PCTDRYWT	16.9		PCT
1998	DIF	VQST12	VQ80	FILLET	PCTDRYWT	18.1		PCT
1998	DIF	VQST13	VQ81	FILLET	PCTDRYWT	20.8		PCT
1998	ECCB	VQST51	VR06	FILLET	PCTDRYWT	22.7		PCT
1998	ECCB	VQST52	VR07	FILLET	PCTDRYWT	22.8		PCT
1998	ECCB	VQST53	VR08	FILLET	PCTDRYWT	20.4		PCT
1998	OS	VQST41	VQ85	FILLET	PCTDRYWT	18.5		PCT
1998	OS	VQST42	VQ86	FILLET	PCTDRYWT	23.0		PCT
1998	OS	VQST43	VQ87	FILLET	PCTDRYWT	21.2		PCT
1999	BS	FF99130C1	WM17COMP	FILLET	PCTDRYWT	18.3		PCT
1999	BS	FF99130C2	WM18COMP	FILLET	PCTDRYWT	16.9		PCT
1999	BS	FF99130C3	WM19COMP	FILLET	PCTDRYWT	19.5		PCT
1999	DIF	FF99110C1	WQ73COMP	FILLET	PCTDRYWT	17.9		PCT
1999	DIF	FF99110C2	WQ74COMP	FILLET	PCTDRYWT	17.3		PCT
1999	DIF	FF99110C3	WQ75COMP	FILLET	PCTDRYWT	17.6		PCT
1999	ECCB	FF99150C1	WM90COMP	FILLET	PCTDRYWT	16.5		PCT
1999	ECCB	FF99150C2	WM91COMP	FILLET	PCTDRYWT	17.0		PCT
1999	ECCB	FF99150C3	WM92COMP	FILLET	PCTDRYWT	16.6		PCT
1999	NB	FF99120C1	WM20COMP	FILLET	PCTDRYWT	17.1		PCT
1999	NB	FF99120C2	WM21COMP	FILLET	PCTDRYWT	18.9		PCT
1999	NB	FF99120C3	WM22COMP	FILLET	PCTDRYWT	16.4		PCT
1999	OS	FF99140C1	WM70COMP	FILLET	PCTDRYWT	15.8		PCT
1999	OS	FF99140C2	WM71COMP	FILLET	PCTDRYWT	16.8		PCT
1999	OS	FF99140C3	WM72COMP	FILLET	PCTDRYWT	14.8		PCT
2000	DIF	FF00110C1	XT83	FILLET	PCTDRYWT	17.3		PCT
2000	DIF	FF00110C2	XT84	FILLET	PCTDRYWT	16.6		PCT
2000	DIF	FF00110C3	XT85	FILLET	PCTDRYWT	17.7		PCT
2000	ECCB	FF00150C1	XU22	FILLET	PCTDRYWT	17.6		PCT
2000	ECCB	FF00150C2	XU23	FILLET	PCTDRYWT	16.1		PCT
2000	ECCB	FF00150C3	XU24	FILLET	PCTDRYWT	16.4		PCT
2000	OS	FF00140C1	XT77	FILLET	PCTDRYWT	17.0		PCT
2000	OS	FF00140C2	XT78	FILLET	PCTDRYWT	17.4		PCT
2000	OS	FF00140C3	XT79	FILLET	PCTDRYWT	16.0		PCT
2001	DIF	FF01110C1	YV39	FILLET	PCTDRYWT	15.6		PCT
2001	DIF	FF01110C2	YV40	FILLET	PCTDRYWT	17.5		PCT
2001	DIF	FF01110C3	YV41	FILLET	PCTDRYWT	17.8		PCT

Table C-6. Percent Dry Weight - Flounder Fillet 1992 – 2003.
(Continued)

Year	Station	Sample	Bottle	Fraction	Parameter	Value	Val Qual	Unit Code
2001	ECCB	FF01150C1	YV63	FILLET	PCTDRYWT	17.9		PCT
2001	ECCB	FF01150C2	YV64	FILLET	PCTDRYWT	16.9		PCT
2001	ECCB	FF01150C3	YV65	FILLET	PCTDRYWT	18.6		PCT
2001	OS	FF01140C1	YV45	FILLET	PCTDRYWT	17.1		PCT
2001	OS	FF01140C2	YV46	FILLET	PCTDRYWT	17.3		PCT
2001	OS	FF01140C3	YV47	FILLET	PCTDRYWT	16.1		PCT
2002	BS	FF02130C1	V3625	FILLET	PCTDRYWT	19.0		PCT
2002	BS	FF02130C2	V3626	FILLET	PCTDRYWT	16.0		PCT
2002	BS	FF02130C3	V3627	FILLET	PCTDRYWT	17.0		PCT
2002	DIF	FF02110C1	V3619	FILLET	PCTDRYWT	18.0		PCT
2002	DIF	FF02110C2	V3620	FILLET	PCTDRYWT	18.0		PCT
2002	DIF	FF02110C3	V3621	FILLET	PCTDRYWT	17.0		PCT
2002	ECCB	FF02150C1	V3959	FILLET	PCTDRYWT	18.0		PCT
2002	ECCB	FF02150C2	V3960	FILLET	PCTDRYWT	18.0		PCT
2002	ECCB	FF02150C3	V3961	FILLET	PCTDRYWT	18.0		PCT
2002	NB	FF02120C1	V3607	FILLET	PCTDRYWT	17.0		PCT
2002	NB	FF02120C2	V3608	FILLET	PCTDRYWT	17.0		PCT
2002	NB	FF02120C3	V3609	FILLET	PCTDRYWT	17.0		PCT
2002	OS	FF02140C1	V3613	FILLET	PCTDRYWT	18.0		PCT
2002	OS	FF02140C2	V3614	FILLET	PCTDRYWT	18.0		PCT
2002	OS	FF02140C3	V3615	FILLET	PCTDRYWT	16.0		PCT
2003	DIF	FF03110C1	T1834	FILLET	PCTDRYWT	16.98		PCT
2003	DIF	FF03110C2	T1835	FILLET	PCTDRYWT	17.65		PCT
2003	DIF	FF03110C3	T1836	FILLET	PCTDRYWT	17.06		PCT
2003	ECCB	FF03150C1	T1846	FILLET	PCTDRYWT	16.7		PCT
2003	ECCB	FF03150C2	T1847	FILLET	PCTDRYWT	17.2		PCT
2003	ECCB	FF03150C3	T1848	FILLET	PCTDRYWT	16.56		PCT
2003	OS	FF03140C1	T1840	FILLET	PCTDRYWT	15.63		PCT
2003	OS	FF03140C2	T1841	FILLET	PCTDRYWT	15.62		PCT
2003	OS	FF03140C3	T1842	FILLET	PCTDRYWT	16.06		PCT

Table C-7. Percent Dry Weight - Flounder Liver 1992 – 2003.

Year	Station	Sample	Bottle	Fraction	Parameter	Value	Val Qual	Unit Code
1992	BS	92-253	92-253L	LIVER	PCTDRYWT	21.8		PCT
1992	BS	92-257	92-257L	LIVER	PCTDRYWT	26.4		PCT
1992	BS	92-258	92-258L	LIVER	PCTDRYWT	24.1		PCT
1992	BS	92-25C	92-25CL	LIVER	PCTDRYWT	23.0		PCT
1992	DIF	92-353	92-353L	LIVER	PCTDRYWT	20.4		PCT
1992	DIF	92-354	92-354L	LIVER	PCTDRYWT	21.5		PCT
1992	DIF	92-359	92-359L	LIVER	PCTDRYWT	24.5		PCT
1992	DIF	92-35C	92-35CL	LIVER	PCTDRYWT	23.1		PCT
1992	ECCB	92-451	92-451L	LIVER	PCTDRYWT	20.7		PCT
1992	ECCB	92-452	92-452L	LIVER	PCTDRYWT	22.2		PCT
1992	ECCB	92-456	92-456L	LIVER	PCTDRYWT	25.7		PCT
1992	ECCB	92-45C	92-45CL	LIVER	PCTDRYWT	23.3		PCT
1992	NB	92-300	92-300L	LIVER	PCTDRYWT	22.2		PCT
1992	NB	92-307	92-307L	LIVER	PCTDRYWT	18.0		PCT
1992	NB	92-308	92-308L	LIVER	PCTDRYWT	20.7		PCT
1992	NB	92-30C	92-30CL	LIVER	PCTDRYWT	25.7		PCT
1992	OS	92-400	92-400L	LIVER	PCTDRYWT	24.1		PCT
1992	OS	92-401	92-401L	LIVER	PCTDRYWT	25.7		PCT
1992	OS	92-409	92-409L	LIVER	PCTDRYWT	22.1		PCT
1992	OS	92-40C	92-40CL	LIVER	PCTDRYWT	24.7		PCT
1993	DIF	FI1-04	FI1-04CL	LIVER	PCTDRYWT	20.2		PCT
1993	ECCB	FI5-06	FI5-06CL	LIVER	PCTDRYWT	20.3		PCT
1993	OS	FI4-05	FI4-05CL	LIVER	PCTDRYWT	20.5		PCT
1994	BS	FI301FLNDR	OV86	LIVER	PCTDRYWT	10.4		PCT
1994	BS	FI302FLNDR	OV87	LIVER	PCTDRYWT	23.6		PCT
1994	BS	FI303FLNDR	OV88	LIVER	PCTDRYWT	18.2		PCT
1994	DIF	FI101FLNDR	OV83	LIVER	PCTDRYWT	15.9		PCT
1994	DIF	FI102FLNDR	OV84	LIVER	PCTDRYWT	23.7		PCT
1994	DIF	FI103FLNDR	OV85	LIVER	PCTDRYWT	22.7		PCT
1994	ECCB	FI501FLNDR	OV95	LIVER	PCTDRYWT	22.0		PCT
1994	ECCB	FI502FLNDR	OV96	LIVER	PCTDRYWT	17.8		PCT
1994	ECCB	FI503FLNDR	OV97	LIVER	PCTDRYWT	20.6		PCT
1994	NB	FI201FLNDR	OV89	LIVER	PCTDRYWT	25.0		PCT
1994	NB	FI202FLNDR	OV90	LIVER	PCTDRYWT	20.0		PCT
1994	NB	FI203FLNDR	OV91	LIVER	PCTDRYWT	22.3		PCT
1994	OS	FI401FLNDR	OV92	LIVER	PCTDRYWT	18.4		PCT
1994	OS	FI402FLNDR	OV93	LIVER	PCTDRYWT	26.9		PCT
1994	OS	FI403FLNDR	OV94	LIVER	PCTDRYWT	19.8		PCT
1995	DIF	P95111000C1	P95111000LC1	LIVER	PCTDRYWT	20.3		PCT
1995	DIF	P95111000C2	P95111000LC2	LIVER	PCTDRYWT	19.4		PCT
1995	DIF	P95111000C3	P95111000LC3	LIVER	PCTDRYWT	18.7		PCT
1995	ECCB	P95115000C1	P95115000LC1	LIVER	PCTDRYWT	20.3		PCT
1995	ECCB	P95115000C2	P95115000LC2	LIVER	PCTDRYWT	18.6		PCT
1995	ECCB	P95115000C3	P95115000LC3	LIVER	PCTDRYWT	19.6		PCT
1995	OS	P95114000C1	P95114000LC1	LIVER	PCTDRYWT	20.5		PCT

Table C-7. Percent Dry Weight - Flounder Liver 1992 – 2003.
(Continued)

Year	Station	Sample	Bottle	Fraction	Parameter	Value	Val Qual	Unit Code
1995	OS	P95114000C2	P95114000LC2	LIVER	PCTDRYWT	21.1		PCT
1995	OS	P95114000C3	P95114000LC3	LIVER	PCTDRYWT	19.4		PCT
1996	BS	P96113000C1	P96113000LC1	LIVER	PCTDRYWT	21.6		PCT
1996	BS	P96113000C2	P96113000LC2	LIVER	PCTDRYWT	23.1		PCT
1996	BS	P96113000C3	P96113000LC3	LIVER	PCTDRYWT	20.0		PCT
1996	DIF	P96111000C1	P96111000LC1	LIVER	PCTDRYWT	20.7		PCT
1996	DIF	P96111000C2	P96111000LC2	LIVER	PCTDRYWT	21.4		PCT
1996	DIF	P96111000C3	P96111000LC3	LIVER	PCTDRYWT	22.7		PCT
1996	ECCB	P96115000C1	P96115000LC1	LIVER	PCTDRYWT	19.7		PCT
1996	ECCB	P96115000C2	P96115000LC2	LIVER	PCTDRYWT	22.0		PCT
1996	ECCB	P96115000C3	P96115000LC3	LIVER	PCTDRYWT	21.4		PCT
1996	NB	P96112000C1	P96112000LC1	LIVER	PCTDRYWT	20.7		PCT
1996	NB	P96112000C2	P96112000LC2	LIVER	PCTDRYWT	19.6		PCT
1996	NB	P96112000C3	P96112000LC3	LIVER	PCTDRYWT	21.8		PCT
1996	OS	P96114000C1	P96114000LC1	LIVER	PCTDRYWT	18.2		PCT
1996	OS	P96114000C2	P96114000LC2	LIVER	PCTDRYWT	23.1		PCT
1996	OS	P96114000C3	P96114000LC3	LIVER	PCTDRYWT	19.0		PCT
1997	DIF	P97111000C1	P97111000LC1	LIVER	PCTDRYWT	21.5		PCT
1997	DIF	P97111000C2	P97111000LC2	LIVER	PCTDRYWT	21.2		PCT
1997	DIF	P97111000C3	P97111000LC3	LIVER	PCTDRYWT	23.3		PCT
1997	ECCB	P97115000C1	P97115000LC1	LIVER	PCTDRYWT	24.1		PCT
1997	ECCB	P97115000C2	P97115000LC2	LIVER	PCTDRYWT	23.5		PCT
1997	ECCB	P97115000C3	P97115000LC3	LIVER	PCTDRYWT	25.4		PCT
1997	OS	P97114000C1	P97114000LC1	LIVER	PCTDRYWT	21.4		PCT
1997	OS	P97114000C2	P97114000LC2	LIVER	PCTDRYWT	22.3		PCT
1997	OS	P97114000C3	P97114000LC3	LIVER	PCTDRYWT	21.3		PCT
1998	DIF	VQST11	VQ82	LIVER	PCTDRYWT	21.4		PCT
1998	DIF	VQST12	VQ83	LIVER	PCTDRYWT	21.7		PCT
1998	DIF	VQST13	VQ84	LIVER	PCTDRYWT	18.5		PCT
1998	ECCB	VQST51	VR09	LIVER	PCTDRYWT	22.9		PCT
1998	ECCB	VQST52	VR10	LIVER	PCTDRYWT	31.5		PCT
1998	ECCB	VQST53	VR11	LIVER	PCTDRYWT	48.6		PCT
1998	OS	VQST41	VQ88	LIVER	PCTDRYWT	20.6		PCT
1998	OS	VQST42	VQ89	LIVER	PCTDRYWT	27.7		PCT
1998	OS	VQST43	VQ90	LIVER	PCTDRYWT	29.1		PCT
1999	BS	FF99130C1	WM14COMP	LIVER	PCTDRYWT	23.8		PCT
1999	BS	FF99130C2	WM15COMP	LIVER	PCTDRYWT	17.1		PCT
1999	BS	FF99130C3	WM16COMP	LIVER	PCTDRYWT	21.8		PCT
1999	DIF	FF99110C1	WQ76COMP	LIVER	PCTDRYWT	28.0		PCT
1999	DIF	FF99110C2	WQ77COMP	LIVER	PCTDRYWT	26.5		PCT
1999	DIF	FF99110C3	WQ78COMP	LIVER	PCTDRYWT	30.5		PCT
1999	ECCB	FF99150C1	WM93COMP	LIVER	PCTDRYWT	13.7		PCT
1999	ECCB	FF99150C2	WM94COMP	LIVER	PCTDRYWT	22.3		PCT
1999	ECCB	FF99150C3	WM95COMP	LIVER	PCTDRYWT	21.0		PCT

Table C-7. Percent Dry Weight - Flounder Liver 1992 – 2003.
(Continued)

Year	Station	Sample	Bottle	Fraction	Parameter	Value	Val Qual	Unit Code
1999	NB	FF99120C1	WM23COMP	LIVER	PCTDRYWT	19.6		PCT
1999	NB	FF99120C2	WM24COMP	LIVER	PCTDRYWT	24.3		PCT
1999	NB	FF99120C3	WM25COMP	LIVER	PCTDRYWT	22.5		PCT
1999	OS	FF99140C1	WM73COMP	LIVER	PCTDRYWT	22.4		PCT
1999	OS	FF99140C2	WM74COMP	LIVER	PCTDRYWT	22.1		PCT
1999	OS	FF99140C3	WM75COMP	LIVER	PCTDRYWT	21.6		PCT
2000	DIF	FF00110C1	XT86	LIVER	PCTDRYWT	24.8		PCT
2000	DIF	FF00110C2	XT87	LIVER	PCTDRYWT	23.7		PCT
2000	DIF	FF00110C3	XT88	LIVER	PCTDRYWT	22.8		PCT
2000	ECCB	FF00150C1	XU25	LIVER	PCTDRYWT	24.0		PCT
2000	ECCB	FF00150C2	XU26	LIVER	PCTDRYWT	23.2		PCT
2000	ECCB	FF00150C3	XU27	LIVER	PCTDRYWT	23.9		PCT
2000	OS	FF00140C1	XT80	LIVER	PCTDRYWT	23.0		PCT
2000	OS	FF00140C2	XT81	LIVER	PCTDRYWT	23.1		PCT
2000	OS	FF00140C3	XT82	LIVER	PCTDRYWT	22.4		PCT
2001	DIF	FF01110C1	YV42	LIVER	PCTDRYWT	21.8		PCT
2001	DIF	FF01110C2	YV43	LIVER	PCTDRYWT	22.7		PCT
2001	DIF	FF01110C3	YV44	LIVER	PCTDRYWT	21.7		PCT
2001	ECCB	FF01150C1	YV66	LIVER	PCTDRYWT	23.7		PCT
2001	ECCB	FF01150C2	YV67	LIVER	PCTDRYWT	18.7		PCT
2001	ECCB	FF01150C3	YV68	LIVER	PCTDRYWT	22.8		PCT
2001	OS	FF01140C1	YV48	LIVER	PCTDRYWT	24.7		PCT
2001	OS	FF01140C2	YV49	LIVER	PCTDRYWT	21.4		PCT
2001	OS	FF01140C3	YV50	LIVER	PCTDRYWT	22.2		PCT
2002	BS	FF02130C1	V3622	LIVER	PCTDRYWT	24.0		PCT
2002	BS	FF02130C2	V3623	LIVER	PCTDRYWT	22.0		PCT
2002	BS	FF02130C3	V3624	LIVER	PCTDRYWT	22.0		PCT
2002	DIF	FF02110C1	V3616	LIVER	PCTDRYWT	25.0		PCT
2002	DIF	FF02110C2	V3617	LIVER	PCTDRYWT	24.0		PCT
2002	DIF	FF02110C3	V3618	LIVER	PCTDRYWT	25.0		PCT
2002	ECCB	FF02150C1	V3956	LIVER	PCTDRYWT	27.0		PCT
2002	ECCB	FF02150C2	V3957	LIVER	PCTDRYWT	27.0		PCT
2002	ECCB	FF02150C3	V3958	LIVER	PCTDRYWT	24.0		PCT
2002	NB	FF02120C1	V3604	LIVER	PCTDRYWT	23.0		PCT
2002	NB	FF02120C2	V3605	LIVER	PCTDRYWT	23.0		PCT
2002	NB	FF02120C3	V3606	LIVER	PCTDRYWT	23.0		PCT
2002	OS	FF02140C1	V3610	LIVER	PCTDRYWT	27.0		PCT
2002	OS	FF02140C2	V3611	LIVER	PCTDRYWT	25.0		PCT
2002	OS	FF02140C3	V3612	LIVER	PCTDRYWT	22.0		PCT
2003	DIF	FF03110C1	T1831	LIVER	PCTDRYWT	22.06		PCT
2003	DIF	FF03110C2	T1832	LIVER	PCTDRYWT	22.37		PCT
2003	DIF	FF03110C3	T1833	LIVER	PCTDRYWT	22.94		PCT
2003	ECCB	FF03150C1	T1843	LIVER	PCTDRYWT	21.91		PCT
2003	ECCB	FF03150C2	T1844	LIVER	PCTDRYWT	21.55		PCT

Table C-7. Percent Dry Weight - Flounder Liver 1992 – 2003.
(Continued)

Year	Station	Sample	Bottle	Fraction	Parameter	Value	Val Qual	Unit Code
2003	ECCB	FF03150C3	T1845	LIVER	PCTDRYWT	22.84		PCT
2003	OS	FF03140C1	T1837	LIVER	PCTDRYWT	23.45		PCT
2003	OS	FF03140C2	T1838	LIVER	PCTDRYWT	22.17		PCT
2003	OS	FF03140C3	T1839	LIVER	PCTDRYWT	21.01		PCT

Table C-8. Percent Dry Weight - Lobster Meat 1992 – 2003.

Year	Station	Sample	Bottle	Fraction	Parameter	Value	Val Qual	Unit Code
1992	DIF	92-467	92-467M	MEAT	PCTDRYWT	22.1		PCT
1992	DIF	92-469	92-469M	MEAT	PCTDRYWT	23.1		PCT
1992	DIF	92-482	92-482M	MEAT	PCTDRYWT	20.0		PCT
1992	ECCB	92-465	92-465M	MEAT	PCTDRYWT	16.3		PCT
1992	ECCB	92-466	92-466M	MEAT	PCTDRYWT	21.7		PCT
1992	ECCB	92-476	92-476M	MEAT	PCTDRYWT	17.2		PCT
1992	OS	92-460	92-460M	MEAT	PCTDRYWT	17.3		PCT
1992	OS	92-463	92-463M	MEAT	PCTDRYWT	16.6		PCT
1992	OS	92-464	92-464M	MEAT	PCTDRYWT	21.3		PCT
1993	DIF	F93010KG34	KG34SM	MEAT	PCTDRYWT	14.3		PCT
1993	DIF	S93030KI06	KI06SM	MEAT	PCTDRYWT	12.5		PCT
1993	DIF	S93030KI07	KI07SM	MEAT	PCTDRYWT	13.5		PCT
1993	ECCB	LOB-F0KH99	KH99SM	MEAT	PCTDRYWT	12.2		PCT
1993	ECCB	LOB-F0KI01	KI01SM	MEAT	PCTDRYWT	18.8		PCT
1993	ECCB	LOB-F0KI02	KI02SM	MEAT	PCTDRYWT	14.4		PCT
1993	ECCB	LOB-F0KI03	KI03SM	MEAT	PCTDRYWT	12.8		PCT
1993	ECCB	LOB-F0KI04	KI04SM	MEAT	PCTDRYWT	19.6		PCT
1993	ECCB	LOB-F0KI05	KI05SM	MEAT	PCTDRYWT	13.7		PCT
1993	ECCB	LOB-F0KI21	KI21SM	MEAT	PCTDRYWT	12.5		PCT
1993	ECCB	LOB-F0KI22	KI22SM	MEAT	PCTDRYWT	14.7		PCT
1993	ECCB	LOB-F0KI23	KI23SM	MEAT	PCTDRYWT	20.2		PCT
1993	ECCB	LOB-F0KI24	KI24SM	MEAT	PCTDRYWT	15.3		PCT
1993	OS	S93030KH97	KH97SM	MEAT	PCTDRYWT	12.9		PCT
1993	OS	S93030KH98	KH98SM	MEAT	PCTDRYWT	18.9		PCT
1994	DIF	FI101LOBST	OV31	MEAT	PCTDRYWT	10.7		PCT
1994	DIF	FI102LOBST	OV32	MEAT	PCTDRYWT	12.5		PCT
1994	DIF	FI103LOBST	OV33	MEAT	PCTDRYWT	11.5		PCT
1994	ECCB	FI501LOBST	OV36	MEAT	PCTDRYWT	16.9		PCT
1994	ECCB	FI502LOBST	OV37	MEAT	PCTDRYWT	16.2		PCT
1994	ECCB	FI503LOBST	OV38	MEAT	PCTDRYWT	15.5		PCT
1994	OS	FI401LOBST	OV34	MEAT	PCTDRYWT	16.9		PCT
1994	OS	FI402LOBST	OV35-MEAN	MEAT	PCTDRYWT	13.3		PCT
1995	DIF	L95111000C1	L95111000TC1	MEAT	PCTDRYWT	11.4		PCT
1995	DIF	L95111000C2	L95111000TC2	MEAT	PCTDRYWT	12.3		PCT
1995	DIF	L95111000C3	L95111000TC3	MEAT	PCTDRYWT	12.5		PCT
1995	ECCB	L95115000C1	L95115000TC1	MEAT	PCTDRYWT	14.0		PCT
1995	ECCB	L95115000C2	L95115000TC2	MEAT	PCTDRYWT	14.6		PCT
1995	ECCB	L95115000C3	L95115000TC3	MEAT	PCTDRYWT	15.0		PCT
1995	OS	L95114000C1	L95114000TC1	MEAT	PCTDRYWT	13.6		PCT
1995	OS	L95114000C2	L95114000TC2	MEAT	PCTDRYWT	12.6		PCT
1995	OS	L95114000C3	L95114000TC3	MEAT	PCTDRYWT	11.4		PCT
1996	DIF	L96111000C1	L96111000TC1	MEAT	PCTDRYWT	15.6		PCT
1996	DIF	L96111000C2	L96111000TC2	MEAT	PCTDRYWT	15.0		PCT
1996	DIF	L96111000C3	L96111000TC3	MEAT	PCTDRYWT	15.3		PCT
1996	ECCB	L96115000C1	L96115000TC1	MEAT	PCTDRYWT	17.6		PCT

Table C-8. Percent Dry Weight - Lobster Meat 1992 – 2003.
(Continued)

Year	Station	Sample	Bottle	Fraction	Parameter	Value	Val Qual	Unit Code
1996	ECCB	L96115000C2	L96115000TC2	MEAT	PCTDRYWT	21.0		PCT
1996	ECCB	L96115000C3	L96115000TC3	MEAT	PCTDRYWT	19.6		PCT
1996	OS	L96114000C1	L96114000TC1	MEAT	PCTDRYWT	14.4		PCT
1996	OS	L96114000C2	L96114000TC2	MEAT	PCTDRYWT	15.2		PCT
1996	OS	L96114000C3	L96114000TC3	MEAT	PCTDRYWT	15.5		PCT
1997	DIF	L97111000C1	L97111000TC1	MEAT	PCTDRYWT	15.3		PCT
1997	DIF	L97111000C2	L97111000TC2	MEAT	PCTDRYWT	13.2		PCT
1997	DIF	L97111000C3	L97111000TC3	MEAT	PCTDRYWT	12.4		PCT
1997	ECCB	L97115000C1	L97115000TC1	MEAT	PCTDRYWT	14.2		PCT
1997	ECCB	L97115000C2	L97115000TC2	MEAT	PCTDRYWT	17.1		PCT
1997	ECCB	L97115000C3	L97115000TC3	MEAT	PCTDRYWT	16.2		PCT
1997	OS	L97114000C1	L97114000TC1	MEAT	PCTDRYWT	18.4		PCT
1997	OS	L97114000C2	L97114000TC2	MEAT	PCTDRYWT	10.7		PCT
1997	OS	L97114000C3	L97114000TC3	MEAT	PCTDRYWT	12.4		PCT
1998	DIF	VZST11	VZ35COMP	MEAT	PCTDRYWT	14.1		PCT
1998	DIF	VZST12	VZ36COMP	MEAT	PCTDRYWT	15.5		PCT
1998	DIF	VZST13	VZ37COMP	MEAT	PCTDRYWT	14.7		PCT
1998	ECCB	VZST91	VZ29COMP	MEAT	PCTDRYWT	15.1		PCT
1998	ECCB	VZST92	VZ30COMP	MEAT	PCTDRYWT	13.4		PCT
1998	ECCB	VZST93	VZ31COMP	MEAT	PCTDRYWT	14.7		PCT
1998	OS	VZST41	VZ23COMP	MEAT	PCTDRYWT	13.5		PCT
1998	OS	VZST42	VZ24COMP	MEAT	PCTDRYWT	13.7		PCT
1998	OS	VZST43	VZ25COMP	MEAT	PCTDRYWT	13.6		PCT
1999	DIF	FL9911C1	XJ42	MEAT	PCTDRYWT	13.0		PCT
1999	DIF	FL9911C2	XJ43	MEAT	PCTDRYWT	15.4		PCT
1999	DIF	FL9911C3	XJ44	MEAT	PCTDRYWT	18.1		PCT
1999	ECCB	FL9915C1	XJ48	MEAT	PCTDRYWT	13.5		PCT
1999	ECCB	FL9915C2	XJ49	MEAT	PCTDRYWT	12.7		PCT
1999	ECCB	FL9915C3	XJ50	MEAT	PCTDRYWT	12.7		PCT
1999	OS	FL9914C1	XJ45	MEAT	PCTDRYWT	14.1		PCT
1999	OS	FL9914C2	XJ46	MEAT	PCTDRYWT	13.0		PCT
1999	OS	FL9914C3	XJ47	MEAT	PCTDRYWT	13.6		PCT
2000	DIF	FL0011C1	YC90	MEAT	PCTDRYWT	13.1		PCT
2000	DIF	FL0011C2	YC91	MEAT	PCTDRYWT	13.2		PCT
2000	DIF	FL0011C3	YC92	MEAT	PCTDRYWT	12.9		PCT
2000	ECCB	FL0015C1	YC87	MEAT	PCTDRYWT	13.0		PCT
2000	ECCB	FL0015C2	YC88	MEAT	PCTDRYWT	14.8		PCT
2000	ECCB	FL0015C3	YC89	MEAT	PCTDRYWT	15.0		PCT
2000	OS	FL0014C1	YC93	MEAT	PCTDRYWT	13.6		PCT
2000	OS	FL0014C2	YC94	MEAT	PCTDRYWT	14.7		PCT
2000	OS	FL0014C3	YC95	MEAT	PCTDRYWT	12.7		PCT
2001	DIF	FL0111-C1	ZH31	MEAT	PCTDRYWT	15.6		PCT
2001	DIF	FL0111-C2	ZH32	MEAT	PCTDRYWT	14.3		PCT
2001	DIF	FL0111-C3	ZH33	MEAT	PCTDRYWT	13.9		PCT

Table C-8. Percent Dry Weight - Lobster Meat 1992 – 2003.
(Continued)

Year	Station	Sample	Bottle	Fraction	Parameter	Value	Val Qual	Unit Code
2001	ECCB	FL0115-C1	ZH37	MEAT	PCTDRYWT	13.9		PCT
2001	ECCB	FL0115-C2	ZH38	MEAT	PCTDRYWT	16.5		PCT
2001	ECCB	FL0115-C3	ZH39	MEAT	PCTDRYWT	14.0		PCT
2001	OS	FL0114-C1	ZI54	MEAT	PCTDRYWT	16.5		PCT
2001	OS	FL0114-C2	ZI55	MEAT	PCTDRYWT	14.2		PCT
2001	OS	FL0114-C3	ZI56	MEAT	PCTDRYWT	14.0		PCT
2002	DIF	FL0211C1	V8626	MEAT	PCTDRYWT	13.4		PCT
2002	DIF	FL0211C2	V8627	MEAT	PCTDRYWT	14.2		PCT
2002	DIF	FL0211C3	V8628	MEAT	PCTDRYWT	13.2		PCT
2002	ECCB	FL0215C1	V8638	MEAT	PCTDRYWT	16.1		PCT
2002	ECCB	FL0215C2	V8639	MEAT	PCTDRYWT	16.4		PCT
2002	ECCB	FL0215C3	V8640	MEAT	PCTDRYWT	14.9		PCT
2002	OS	FL0214C1	V8632	MEAT	PCTDRYWT	15.0		PCT
2002	OS	FL0214C2	V8633	MEAT	PCTDRYWT	14.0		PCT
2002	OS	FL0214C3	V8634	MEAT	PCTDRYWT	14.0		PCT
2003	DIF	FL0311C1	T6506	MEAT	PCTDRYWT	14.83		PCT
2003	DIF	FL0311C2	T6507	MEAT	PCTDRYWT	14.49		PCT
2003	DIF	FL0311C3	T6508	MEAT	PCTDRYWT	17.41		PCT
2003	ECCB	FL0315C1	T7547	MEAT	PCTDRYWT	12.63		PCT
2003	ECCB	FL0315C2	T7548	MEAT	PCTDRYWT	12.38		PCT
2003	ECCB	FL0315C3	T7549	MEAT	PCTDRYWT	12.07		PCT
2003	OS	FL0314C1	T7051	MEAT	PCTDRYWT	12.37		PCT
2003	OS	FL0314C2	T7052	MEAT	PCTDRYWT	14.21		PCT
2003	OS	FL0314C3	T7053	MEAT	PCTDRYWT	12.59		PCT

Table C-9. Percent Dry Weight - Lobster Hepatopancreas 1992 – 2003.

Year	Station	Sample	Bottle	Fraction	Parameter	Value	Val Qual	Unit Code
1992	DIF	92-467	92-467L	HEPATOPANC	PCTDRYWT	38.5		PCT
1992	DIF	92-469	92-469L	HEPATOPANC	PCTDRYWT	50.8		PCT
1992	DIF	92-482	92-482L	HEPATOPANC	PCTDRYWT	40.5		PCT
1992	ECCB	92-465	92-465L	HEPATOPANC	PCTDRYWT	18.9		PCT
1992	ECCB	92-466	92-466L	HEPATOPANC	PCTDRYWT	54.5		PCT
1992	ECCB	92-476	92-476L	HEPATOPANC	PCTDRYWT	22.7		PCT
1992	OS	92-460	92-460L	HEPATOPANC	PCTDRYWT	35.4		PCT
1992	OS	92-463	92-463L	HEPATOPANC	PCTDRYWT	31.9		PCT
1992	OS	92-464	92-464L	HEPATOPANC	PCTDRYWT	51.9		PCT
1993	DIF	F93010KG34	KG34SH	HEPATOPANC	PCTDRYWT	18.1		PCT
1993	DIF	S93030KI06	KI06SH	HEPATOPANC	PCTDRYWT	25.6		PCT
1993	DIF	S93030KI07	KI07SH	HEPATOPANC	PCTDRYWT	18.8		PCT
1993	ECCB	LOB-F0KH99	KH99SH	HEPATOPANC	PCTDRYWT	28.5		PCT
1993	ECCB	LOB-F0KI01	KI01SH	HEPATOPANC	PCTDRYWT	35.9		PCT
1993	ECCB	LOB-F0KI02	KI02SH	HEPATOPANC	PCTDRYWT	32.2		PCT
1993	ECCB	LOB-F0KI03	KI03SH	HEPATOPANC	PCTDRYWT	13.4		PCT
1993	ECCB	LOB-F0KI04	KI04SH	HEPATOPANC	PCTDRYWT	40.4		PCT
1993	ECCB	LOB-F0KI05	KI05SH	HEPATOPANC	PCTDRYWT	20.8		PCT
1993	ECCB	LOB-F0KI21	KI21SH	HEPATOPANC	PCTDRYWT	14.0		PCT
1993	ECCB	LOB-F0KI22	KI22SH	HEPATOPANC	PCTDRYWT	17.8		PCT
1993	ECCB	LOB-F0KI23	KI23SH	HEPATOPANC	PCTDRYWT	34.6		PCT
1993	ECCB	LOB-F0KI24	KI24SH	HEPATOPANC	PCTDRYWT	20.7		PCT
1993	OS	S93030KH97	KH97SH	HEPATOPANC	PCTDRYWT	20.0		PCT
1993	OS	S93030KH98	KH98SH	HEPATOPANC	PCTDRYWT	30.1		PCT
1994	DIF	FI101LOBST	OV42	HEPATOPANC	PCTDRYWT	29.9		PCT
1994	DIF	FI102LOBST	OV43	HEPATOPANC	PCTDRYWT	28.6		PCT
1994	DIF	FI103LOBST	OV44	HEPATOPANC	PCTDRYWT	24.3		PCT
1994	ECCB	FI501LOBST	OV47	HEPATOPANC	PCTDRYWT	29.0		PCT
1994	ECCB	FI502LOBST	OV48	HEPATOPANC	PCTDRYWT	30.6		PCT
1994	ECCB	FI503LOBST	OV49	HEPATOPANC	PCTDRYWT	25.0		PCT
1994	OS	FI401LOBST	OV45	HEPATOPANC	PCTDRYWT	27.6		PCT
1994	OS	FI402LOBST	OV46	HEPATOPANC	PCTDRYWT	30.3		PCT
1995	DIF	L95111000C1	L95111000HC1	HEPATOPANC	PCTDRYWT	37.4		PCT
1995	DIF	L95111000C2	L95111000HC2	HEPATOPANC	PCTDRYWT	38.2		PCT
1995	DIF	L95111000C3	L95111000HC3	HEPATOPANC	PCTDRYWT	31.0		PCT
1995	ECCB	L95115000C1	L95115000HC1	HEPATOPANC	PCTDRYWT	29.3		PCT
1995	ECCB	L95115000C2	L95115000HC2	HEPATOPANC	PCTDRYWT	35.3		PCT
1995	ECCB	L95115000C3	L95115000HC3	HEPATOPANC	PCTDRYWT	35.8		PCT
1995	OS	L95114000C1	L95114000HC1	HEPATOPANC	PCTDRYWT	37.6		PCT
1995	OS	L95114000C2	L95114000HC2	HEPATOPANC	PCTDRYWT	28.9		PCT
1995	OS	L95114000C3	L95114000HC3	HEPATOPANC	PCTDRYWT	28.5		PCT
1996	DIF	L96111000C1	L96111000HC1	HEPATOPANC	PCTDRYWT	29.7		PCT
1996	DIF	L96111000C2	L96111000HC2	HEPATOPANC	PCTDRYWT	35.4		PCT
1996	DIF	L96111000C3	L96111000HC3	HEPATOPANC	PCTDRYWT	38.6		PCT
1996	ECCB	L96115000C1	L96115000HC1	HEPATOPANC	PCTDRYWT	38.3		PCT

Table C-9. Percent Dry Weight - Lobster Hepatopancreas 1992 – 2003. (Continued)

Year	Station	Sample	Bottle	Fraction	Parameter	Value	Val Qual	Unit Code
1996	ECCB	L96115000C2	L96115000HC2	HEPATOPANC	PCTDRYWT	43.4		PCT
1996	ECCB	L96115000C3	L96115000HC3	HEPATOPANC	PCTDRYWT	42.8		PCT
1996	OS	L96114000C1	L96114000HC1	HEPATOPANC	PCTDRYWT	35.2		PCT
1996	OS	L96114000C2	L96114000HC2	HEPATOPANC	PCTDRYWT	31.2		PCT
1996	OS	L96114000C3	L96114000HC3	HEPATOPANC	PCTDRYWT	34.3		PCT
1997	DIF	L97111000C1	L97111000HC1	HEPATOPANC	PCTDRYWT	30.0		PCT
1997	DIF	L97111000C2	L97111000HC2	HEPATOPANC	PCTDRYWT	31.3		PCT
1997	DIF	L97111000C3	L97111000HC3	HEPATOPANC	PCTDRYWT	27.1		PCT
1997	ECCB	L97115000C1	L97115000HC1	HEPATOPANC	PCTDRYWT	33.8		PCT
1997	ECCB	L97115000C2	L97115000HC2	HEPATOPANC	PCTDRYWT	33.9		PCT
1997	ECCB	L97115000C3	L97115000HC3	HEPATOPANC	PCTDRYWT	35.7		PCT
1997	OS	L97114000C1	L97114000HC1	HEPATOPANC	PCTDRYWT	41.3		PCT
1997	OS	L97114000C2	L97114000HC2	HEPATOPANC	PCTDRYWT	25.8		PCT
1997	OS	L97114000C3	L97114000HC3	HEPATOPANC	PCTDRYWT	25.8		PCT
1998	DIF	VZST11	VZ38COMP	HEPATOPANC	PCTDRYWT	36.9		PCT
1998	DIF	VZST12	VZ39COMP	HEPATOPANC	PCTDRYWT	33.5		PCT
1998	DIF	VZST13	VZ40COMP	HEPATOPANC	PCTDRYWT	33.5		PCT
1998	ECCB	VZST91	VZ32COMP	HEPATOPANC	PCTDRYWT	28.7		PCT
1998	ECCB	VZST92	VZ33COMP	HEPATOPANC	PCTDRYWT	29.3		PCT
1998	ECCB	VZST93	VZ34COMP	HEPATOPANC	PCTDRYWT	31.3		PCT
1998	OS	VZST41	VZ26COMP	HEPATOPANC	PCTDRYWT	29.0		PCT
1998	OS	VZST42	VZ27COMP	HEPATOPANC	PCTDRYWT	34.0		PCT
1998	OS	VZST43	VZ28COMP	HEPATOPANC	PCTDRYWT	34.2		PCT
1999	DIF	FL9911C1	XJ51	HEPATOPANC	PCTDRYWT	45.8		PCT
1999	DIF	FL9911C2	XJ52	HEPATOPANC	PCTDRYWT	32.7		PCT
1999	DIF	FL9911C3	XJ53	HEPATOPANC	PCTDRYWT	36.2		PCT
1999	ECCB	FL9915C1	XJ57	HEPATOPANC	PCTDRYWT	26.0		PCT
1999	ECCB	FL9915C2	XJ58	HEPATOPANC	PCTDRYWT	26.0		PCT
1999	ECCB	FL9915C3	XJ59	HEPATOPANC	PCTDRYWT	24.1		PCT
1999	OS	FL9914C1	XJ54	HEPATOPANC	PCTDRYWT	29.1		PCT
1999	OS	FL9914C2	XJ55	HEPATOPANC	PCTDRYWT	31.2		PCT
1999	OS	FL9914C3	XJ56	HEPATOPANC	PCTDRYWT	28.6		PCT
2000	DIF	FL0011C1	YC81	HEPATOPANC	PCTDRYWT	30.8		PCT
2000	DIF	FL0011C2	YC82	HEPATOPANC	PCTDRYWT	35.7		PCT
2000	DIF	FL0011C3	YC83	HEPATOPANC	PCTDRYWT	30.7		PCT
2000	ECCB	FL0015C1	YC78	HEPATOPANC	PCTDRYWT	27.4		PCT
2000	ECCB	FL0015C2	YC79	HEPATOPANC	PCTDRYWT	33.7		PCT
2000	ECCB	FL0015C3	YC80	HEPATOPANC	PCTDRYWT	23.8		PCT
2000	OS	FL0014C1	YC84	HEPATOPANC	PCTDRYWT	31.7		PCT
2000	OS	FL0014C2	YC85	HEPATOPANC	PCTDRYWT	31.2		PCT
2000	OS	FL0014C3	YC86	HEPATOPANC	PCTDRYWT	32.1		PCT
2001	DIF	FL0111-C1	ZH34	HEPATOPANC	PCTDRYWT	34.4		PCT
2001	DIF	FL0111-C2	ZH35	HEPATOPANC	PCTDRYWT	27.6		PCT
2001	DIF	FL0111-C3	ZH36	HEPATOPANC	PCTDRYWT	31.4		PCT

Table C-9. Percent Dry Weight - Lobster Hepatopancreas 1992 – 2003. (Continued)

Year	Station	Sample	Bottle	Fraction	Parameter	Value	Val Qual	Unit Code
2001	ECCB	FL0115-C1	ZH40	HEPATOPANC	PCTDRYWT	27.3		PCT
2001	ECCB	FL0115-C2	ZH41	HEPATOPANC	PCTDRYWT	31.4		PCT
2001	ECCB	FL0115-C3	ZH42	HEPATOPANC	PCTDRYWT	27.1		PCT
2001	OS	FL0114-C1	ZI51	HEPATOPANC	PCTDRYWT	39.7		PCT
2001	OS	FL0114-C2	ZI52	HEPATOPANC	PCTDRYWT	30.5		PCT
2001	OS	FL0114-C3	ZI53	HEPATOPANC	PCTDRYWT	30.3		PCT
2002	DIF	FL0211C1	V8629	HEPATOPANC	PCTDRYWT	29.2		PCT
2002	DIF	FL0211C2	V8630	HEPATOPANC	PCTDRYWT	26.1		PCT
2002	DIF	FL0211C3	V8631	HEPATOPANC	PCTDRYWT	28.8		PCT
2002	ECCB	FL0215C1	V8641	HEPATOPANC	PCTDRYWT	29.4		PCT
2002	ECCB	FL0215C2	V8642	HEPATOPANC	PCTDRYWT	27.3		PCT
2002	ECCB	FL0215C3	V8643	HEPATOPANC	PCTDRYWT	27.2		PCT
2002	OS	FL0214C1	V8635	HEPATOPANC	PCTDRYWT	29.0		PCT
2002	OS	FL0214C2	V8636	HEPATOPANC	PCTDRYWT	24.2		PCT
2002	OS	FL0214C3	V8637	HEPATOPANC	PCTDRYWT	33.7		PCT
2003	DIF	FL0311C1	T6509	HEPATOPANC	PCTDRYWT	29.86		PCT
2003	DIF	FL0311C2	T6510	HEPATOPANC	PCTDRYWT	29.82		PCT
2003	DIF	FL0311C3	T6511	HEPATOPANC	PCTDRYWT	32.4		PCT
2003	ECCB	FL0315C1	T7550	HEPATOPANC	PCTDRYWT	30.82		PCT
2003	ECCB	FL0315C2	T7551	HEPATOPANC	PCTDRYWT	27.54		PCT
2003	ECCB	FL0315C3	T7552	HEPATOPANC	PCTDRYWT	26.68		PCT
2003	OS	FL0314C1	T7054	HEPATOPANC	PCTDRYWT	30.31		PCT
2003	OS	FL0314C2	T7055	HEPATOPANC	PCTDRYWT	37.58		PCT
2003	OS	FL0314C3	T7056	HEPATOPANC	PCTDRYWT	29.38		PCT

Table C-10. Percent Dry Weight - Mussels 1991 – 2003.

Year	Station	Sample	Bottle	Fraction	Parameter	Value	Val Qual	Unit Code
1991	DIL	M91143957	M91143957	SOFT_TISSUE	PCTDRYWT	13.6		PCT
1991	DIL	M91143958	M91143958	SOFT_TISSUE	PCTDRYWT	14.1		PCT
1991	DIL	M91143959	M91143959	SOFT_TISSUE	PCTDRYWT	10.8		PCT
1991	DIL	M91143960	M91143960	SOFT_TISSUE	PCTDRYWT	12.0		PCT
1991	DIL	M91143961	M91143961	SOFT_TISSUE	PCTDRYWT	12.9		PCT
1991	DIL	M91143962	M91143962	SOFT_TISSUE	PCTDRYWT	12.4		PCT
1991	DIL	M91143963	M91143963	SOFT_TISSUE	PCTDRYWT	13.8		PCT
1991	DIL	M91143964	M91143964	SOFT_TISSUE	PCTDRYWT	14.0		PCT
1991	GL	M91143626	M91143626	SOFT_TISSUE	PCTDRYWT	13.5		PCT
1991	GL	M91143627	M91143627	SOFT_TISSUE	PCTDRYWT	14.1		PCT
1991	GL	M91143628	M91143628	SOFT_TISSUE	PCTDRYWT	12.7		PCT
1991	GL	M91143629	M91143629	SOFT_TISSUE	PCTDRYWT	13.4		PCT
1991	GL	M91143630	M91143630	SOFT_TISSUE	PCTDRYWT	13.1		PCT
1991	GL	M91143631	M91143631	SOFT_TISSUE	PCTDRYWT	9.7		PCT
1991	GL	M91143632	M91143632	SOFT_TISSUE	PCTDRYWT	8.4		PCT
1991	GL	M91143633	M91143633	SOFT_TISSUE	PCTDRYWT	9.0		PCT
1991	GL	M91143634	M91143634	SOFT_TISSUE	PCTDRYWT	8.1		PCT
1991	GL	M91143635	M91143635	SOFT_TISSUE	PCTDRYWT	8.0		PCT
1991	IH	M91143739	M91143739	SOFT_TISSUE	PCTDRYWT	14.7		PCT
1991	IH	M91143740	M91143740	SOFT_TISSUE	PCTDRYWT	8.0		PCT
1991	IH	M91143741	M91143741	SOFT_TISSUE	PCTDRYWT	12.2		PCT
1991	IH	M91143742	M91143742	SOFT_TISSUE	PCTDRYWT	11.1		PCT
1991	IH	M91143743	M91143743	SOFT_TISSUE	PCTDRYWT	9.8		PCT
1992	DIL	M92164479	M92164479	SOFT_TISSUE	PCTDRYWT	12.4		PCT
1992	DIL	M92164480	M92164480	SOFT_TISSUE	PCTDRYWT	16.8		PCT
1992	DIL	M92164481	M92164481	SOFT_TISSUE	PCTDRYWT	11.7		PCT
1992	DIL	M92164482	M92164482	SOFT_TISSUE	PCTDRYWT	10.5		PCT
1992	DIL	M92164483	M92164483	SOFT_TISSUE	PCTDRYWT	10.8		PCT
1992	DIL	M92164484	M92164484	SOFT_TISSUE	PCTDRYWT	11.9		PCT
1992	DIL	M92164485	M92164485	SOFT_TISSUE	PCTDRYWT	11.6		PCT
1992	DIL	M92164486	M92164486	SOFT_TISSUE	PCTDRYWT	11.7		PCT
1992	GL	M92162679	M92162679	SOFT_TISSUE	PCTDRYWT	14.7		PCT
1992	GL	M92162680	M92162680	SOFT_TISSUE	PCTDRYWT	12.8		PCT
1992	GL	M92162681	M92162681	SOFT_TISSUE	PCTDRYWT	15.9		PCT
1992	GL	M92162682	M92162682	SOFT_TISSUE	PCTDRYWT	13.5		PCT
1992	GL	M92162683	M92162683	SOFT_TISSUE	PCTDRYWT	14.4		PCT
1992	IH	M92164487	M92164487	SOFT_TISSUE	PCTDRYWT	5.7		PCT
1992	IH	M92164488	M92164488	SOFT_TISSUE	PCTDRYWT	9.6		PCT
1992	IH	M92164489	M92164489	SOFT_TISSUE	PCTDRYWT	11.0		PCT
1992	IH	M92164490	M92164490	SOFT_TISSUE	PCTDRYWT	10.0		PCT
1992	IH	M92164491	M92164491	SOFT_TISSUE	PCTDRYWT	10.6		PCT
1992	OSM	M92164492	M92164492	SOFT_TISSUE	PCTDRYWT	14.5		PCT
1992	OSM	M92164493	M92164493	SOFT_TISSUE	PCTDRYWT	16.6		PCT
1992	OSM	M92164494	M92164494	SOFT_TISSUE	PCTDRYWT	15.3		PCT
1992	OSM	M92164495	M92164495	SOFT_TISSUE	PCTDRYWT	15.5		PCT

Table C-10. Percent Dry Weight - Mussels 1991 – 2003.
(Continued)

Year	Station	Sample	Bottle	Fraction	Parameter	Value	Val Qual	Unit Code
1992	OSM	M92164496	M92164496	SOFT_TISSUE	PCTDRYWT	15.2		PCT
1992	OSM	M92164497	M92164497	SOFT_TISSUE	PCTDRYWT	16.9		PCT
1992	OSM	M92164498	M92164498	SOFT_TISSUE	PCTDRYWT	16.1		PCT
1992	OSM	M92164499	M92164499	SOFT_TISSUE	PCTDRYWT	16.0		PCT
1993	DIL	M93196384	M93196384	SOFT_TISSUE	PCTDRYWT	14.5		PCT
1993	DIL	M93196385	M93196385	SOFT_TISSUE	PCTDRYWT	13.5		PCT
1993	DIL	M93196386	M93196386	SOFT_TISSUE	PCTDRYWT	14.4		PCT
1993	DIL	M93196387	M93196387	SOFT_TISSUE	PCTDRYWT	14.9		PCT
1993	DIL	M93196388	M93196388	SOFT_TISSUE	PCTDRYWT	14.5		PCT
1993	GL	M93188933	M93188933	SOFT_TISSUE	PCTDRYWT	10.6		PCT
1993	GL	M93188934	M93188934	SOFT_TISSUE	PCTDRYWT	9.8		PCT
1993	GL	M93188936	M93188936	SOFT_TISSUE	PCTDRYWT	11.8		PCT
1993	GL	M93188937	M93188937	SOFT_TISSUE	PCTDRYWT	14.7		PCT
1993	GL	M93188941	M93188941	SOFT_TISSUE	PCTDRYWT	12.4	v	PCT
1993	IH	M93196389	M93196389	SOFT_TISSUE	PCTDRYWT	10.3		PCT
1993	IH	M93196390	M93196390	SOFT_TISSUE	PCTDRYWT	11.0		PCT
1993	IH	M93196391	M93196391	SOFT_TISSUE	PCTDRYWT	10.5		PCT
1993	IH	M93196392	M93196392	SOFT_TISSUE	PCTDRYWT	11.1		PCT
1993	OSM	M93196376	M93196376	SOFT_TISSUE	PCTDRYWT	19.1		PCT
1993	OSM	M93196377	M93196377	SOFT_TISSUE	PCTDRYWT	17.5		PCT
1993	OSM	M93196378	M93196378	SOFT_TISSUE	PCTDRYWT	18.4		PCT
1993	OSM	M93196379	M93196379	SOFT_TISSUE	PCTDRYWT	18.4		PCT
1993	OSM	M93196380	M93196380	SOFT_TISSUE	PCTDRYWT	18.3		PCT
1993	OSM	M93196381	M93196381	SOFT_TISSUE	PCTDRYWT	17.9		PCT
1993	OSM	M93196382	M93196382	SOFT_TISSUE	PCTDRYWT	18.9		PCT
1993	OSM	M93196383	M93196383	SOFT_TISSUE	PCTDRYWT	19.7		PCT
1993	OSM	M93203265R	M93203265R	SOFT_TISSUE	PCTDRYWT	18.4		PCT
1993	OSM	M93203266R	M93203266R	SOFT_TISSUE	PCTDRYWT	17.9		PCT
1993	OSM	M93203279	M93203279	SOFT_TISSUE	PCTDRYWT	16.9		PCT
1994	DIL	M94233366	M94233366	SOFT_TISSUE	PCTDRYWT	13.3		PCT
1994	DIL	M94233367	M94233367	SOFT_TISSUE	PCTDRYWT	12.8		PCT
1994	DIL	M94233368	M94233368	SOFT_TISSUE	PCTDRYWT	13.1		PCT
1994	DIL	M94233369	M94233369	SOFT_TISSUE	PCTDRYWT	12.7		PCT
1994	GL	M94225475	M94225475	SOFT_TISSUE	PCTDRYWT	13.5		PCT
1994	GL	M94225476	M94225476	SOFT_TISSUE	PCTDRYWT	13.1		PCT
1994	GL	M94225477	M94225477	SOFT_TISSUE	PCTDRYWT	13.7		PCT
1994	GL	M94225478	M94225478	SOFT_TISSUE	PCTDRYWT	14.8		PCT
1994	IH	M94233371	M94233371	SOFT_TISSUE	PCTDRYWT	14.3		PCT
1994	IH	M94233372	M94233372	SOFT_TISSUE	PCTDRYWT	11.7		PCT
1994	IH	M94233373	M94233373	SOFT_TISSUE	PCTDRYWT	14.8		PCT
1994	OSM	M94233376	M94233376	SOFT_TISSUE	PCTDRYWT	16.0		PCT
1994	OSM	M94233377	M94233377	SOFT_TISSUE	PCTDRYWT	16.5		PCT
1994	OSM	M94233378	M94233378	SOFT_TISSUE	PCTDRYWT	16.8		PCT

Table C-10. Percent Dry Weight - Mussels 1991 – 2003.
(Continued)

Year	Station	Sample	Bottle	Fraction	Parameter	Value	Val Qual	Unit Code
1994	OSM	M94233379	M94233379	SOFT_TISSUE	PCTDRYWT	17.0		PCT
1994	OSM	M94233381	M94233381	SOFT_TISSUE	PCTDRYWT	16.4		PCT
1994	OSM	M94233382	M94233382	SOFT_TISSUE	PCTDRYWT	16.3		PCT
1994	OSM	M94233383	M94233383	SOFT_TISSUE	PCTDRYWT	17.2		PCT
1994	OSM	M94233384	M94233384	SOFT_TISSUE	PCTDRYWT	17.6		PCT
1995	DIL	M9511D1H7TC1	M9511D1H7TC1	SOFT_TISSUE	PCTDRYWT	11.6		PCT
1995	DIL	M9511D1H7TC2	M9511D1H7TC2	SOFT_TISSUE	PCTDRYWT	12.4		PCT
1995	DIL	M9511D1H7TC3	M9511D1H7TC3	SOFT_TISSUE	PCTDRYWT	13.6		PCT
1995	DIL	M9511D1H7TC4	M9511D1H7TC4	SOFT_TISSUE	PCTDRYWT	11.2		PCT
1995	DIL	M9511D1H7TC5	M9511D1H7TC5	SOFT_TISSUE	PCTDRYWT	10.7		PCT
1995	DIL	M9511D1H8TC1	M9511D1H8TC1	SOFT_TISSUE	PCTDRYWT	0.0	e	PCT
1995	DIL	M9511D1H8TC2	M9511D1H8TC2	SOFT_TISSUE	PCTDRYWT	0.0	e	PCT
1995	DIL	M9511D1H8TC3	M9511D1H8TC3	SOFT_TISSUE	PCTDRYWT	0.0	e	PCT
1995	DIL	M9511D1H8TC4	M9511D1H8TC4	SOFT_TISSUE	PCTDRYWT	0.0	e	PCT
1995	DIL	M9511D1H8TC5	M9511D1H8TC5	SOFT_TISSUE	PCTDRYWT	0.0	e	PCT
1995	GL	M9511H7TC1	M9511H7TC1	SOFT_TISSUE	PCTDRYWT	12.4		PCT
1995	GL	M9511H7TC2	M9511H7TC2	SOFT_TISSUE	PCTDRYWT	10.8		PCT
1995	GL	M9511H7TC3	M9511H7TC3	SOFT_TISSUE	PCTDRYWT	11.3		PCT
1995	GL	M9511H7TC4	M9511H7TC4	SOFT_TISSUE	PCTDRYWT	11.6		PCT
1995	GL	M9511H7TC5	M9511H7TC5	SOFT_TISSUE	PCTDRYWT	11.8		PCT
1995	IH	M9511D6H7TC1	M9511D6H7TC1	SOFT_TISSUE	PCTDRYWT	12.3		PCT
1995	IH	M9511D6H7TC2	M9511D6H7TC2	SOFT_TISSUE	PCTDRYWT	14.7		PCT
1995	IH	M9511D6H7TC3	M9511D6H7TC3	SOFT_TISSUE	PCTDRYWT	13.7		PCT
1995	IH	M9511D6H7TC4	M9511D6H7TC4	SOFT_TISSUE	PCTDRYWT	12.9		PCT
1995	IH	M9511D6H7TC5	M9511D6H7TC5	SOFT_TISSUE	PCTDRYWT	11.9		PCT
1995	IH	M9511D6H8TC1	M9511D6H8TC1	SOFT_TISSUE	PCTDRYWT	0.0	e	PCT
1995	IH	M9511D6H8TC2	M9511D6H8TC2	SOFT_TISSUE	PCTDRYWT	0.0	e	PCT
1995	IH	M9511D6H8TC3	M9511D6H8TC3	SOFT_TISSUE	PCTDRYWT	0.0	e	PCT
1995	IH	M9511D6H8TC4	M9511D6H8TC4	SOFT_TISSUE	PCTDRYWT	0.0	e	PCT
1995	IH	M9511D6H8TC5	M9511D6H8TC5	SOFT_TISSUE	PCTDRYWT	0.0	e	PCT
1995	SA	M9511H8TC1	M9511H8TC1	SOFT_TISSUE	PCTDRYWT	0.0	e	PCT
1995	SA	M9511H8TC2	M9511H8TC2	SOFT_TISSUE	PCTDRYWT	0.0	e	PCT
1995	SA	M9511H8TC3	M9511H8TC3	SOFT_TISSUE	PCTDRYWT	0.0	e	PCT
1995	SA	M9511H8TC4	M9511H8TC4	SOFT_TISSUE	PCTDRYWT	0.0	e	PCT
1995	SA	M9511H8TC5	M9511H8TC5	SOFT_TISSUE	PCTDRYWT	0.0	e	PCT
1996	DIL	M9611D1H7TC1	M9611D1H7TC1	SOFT_TISSUE	PCTDRYWT	9.7		PCT
1996	DIL	M9611D1H7TC2	M9611D1H7TC2	SOFT_TISSUE	PCTDRYWT	11.4		PCT
1996	DIL	M9611D1H7TC3	M9611D1H7TC3	SOFT_TISSUE	PCTDRYWT	13.2		PCT
1996	DIL	M9611D1H7TC4	M9611D1H7TC4	SOFT_TISSUE	PCTDRYWT	13.3		PCT
1996	DIL	M9611D1H7TC5	M9611D1H7TC5	SOFT_TISSUE	PCTDRYWT	12.0		PCT
1996	DIL	M9611D1H8TC1	M9611D1H8TC1	SOFT_TISSUE	PCTDRYWT	14.2	j	PCT
1996	DIL	M9611D1H8TC2	M9611D1H8TC2	SOFT_TISSUE	PCTDRYWT	14.2	j	PCT
1996	DIL	M9611D1H8TC3	M9611D1H8TC3	SOFT_TISSUE	PCTDRYWT	14.2	j	PCT

Table C-10. Percent Dry Weight - Mussels 1991 – 2003.
(Continued)

Year	Station	Sample	Bottle	Fraction	Parameter	Value	Val Qual	Unit Code
1996	DIL	M9611D1H8TC4	M9611D1H8TC4	SOFT_TISSUE	PCTDRYWT	14.2	j	PCT
1996	DIL	M9611D1H8TC5	M9611D1H8TC5	SOFT_TISSUE	PCTDRYWT	14.2	j	PCT
1996	GL	M9611H7TC1	M9611H7TC1	SOFT_TISSUE	PCTDRYWT	8.8		PCT
1996	GL	M9611H7TC2	M9611H7TC2	SOFT_TISSUE	PCTDRYWT	14.1		PCT
1996	GL	M9611H7TC3	M9611H7TC3	SOFT_TISSUE	PCTDRYWT	14.6		PCT
1996	IH	M9611D6H7TC1	M9611D6H7TC1	SOFT_TISSUE	PCTDRYWT	9.6		PCT
1996	IH	M9611D6H7TC2	M9611D6H7TC2	SOFT_TISSUE	PCTDRYWT	16.9		PCT
1996	IH	M9611D6H7TC3	M9611D6H7TC3	SOFT_TISSUE	PCTDRYWT	14.7		PCT
1996	IH	M9611D6H7TC4	M9611D6H7TC4	SOFT_TISSUE	PCTDRYWT	16.4		PCT
1996	IH	M9611D6H7TC5	M9611D6H7TC5	SOFT_TISSUE	PCTDRYWT	13.2		PCT
1996	IH	M9611D6H8TC1	M9611D6H8TC1	SOFT_TISSUE	PCTDRYWT	16.3	j	PCT
1996	IH	M9611D6H8TC2	M9611D6H8TC2	SOFT_TISSUE	PCTDRYWT	16.3	j	PCT
1996	IH	M9611D6H8TC3	M9611D6H8TC3	SOFT_TISSUE	PCTDRYWT	16.3	j	PCT
1996	OSM	M9611D4H7TC1	M9611D4H7TC1	SOFT_TISSUE	PCTDRYWT	13.9		PCT
1996	OSM	M9611D4H7TC2	M9611D4H7TC2	SOFT_TISSUE	PCTDRYWT	17.4		PCT
1996	OSM	M9611D4H7TC3	M9611D4H7TC3	SOFT_TISSUE	PCTDRYWT	16.8		PCT
1996	OSM	M9611D4H7TC4	M9611D4H7TC4	SOFT_TISSUE	PCTDRYWT	16.5		PCT
1996	OSM	M9611D4H7TC5	M9611D4H7TC5	SOFT_TISSUE	PCTDRYWT	17.7		PCT
1996	OSM	M9611D4H8TC1	M9611D4H8TC1	SOFT_TISSUE	PCTDRYWT	19.1	j	PCT
1996	OSM	M9611D4H8TC2	M9611D4H8TC2	SOFT_TISSUE	PCTDRYWT	19.1	j	PCT
1996	OSM	M9611D4H8TC3	M9611D4H8TC3	SOFT_TISSUE	PCTDRYWT	19.1	j	PCT
1996	OSM	M9611D4H8TC4	M9611D4H8TC4	SOFT_TISSUE	PCTDRYWT	19.1	j	PCT
1996	OSM	M9611D4H8TC5	M9611D4H8TC5	SOFT_TISSUE	PCTDRYWT	19.1	j	PCT
1996	SA	M9611H8TC1	M9611H8TC1	SOFT_TISSUE	PCTDRYWT	17.8	j	PCT
1996	SA	M9611H8TC2	M9611H8TC2	SOFT_TISSUE	PCTDRYWT	17.8	j	PCT
1996	SA	M9611H8TC3	M9611H8TC3	SOFT_TISSUE	PCTDRYWT	17.8	j	PCT
1996	SA	M9611H8TC4	M9611H8TC4	SOFT_TISSUE	PCTDRYWT	17.8	j	PCT
1996	SA	M9611H8TC5	M9611H8TC5	SOFT_TISSUE	PCTDRYWT	17.8	j	PCT
1997	DIL	M9711D1H7TC1	M9711D1H7TC1	SOFT_TISSUE	PCTDRYWT	13.0		PCT
1997	DIL	M9711D1H7TC2	M9711D1H7TC2	SOFT_TISSUE	PCTDRYWT	11.9		PCT
1997	DIL	M9711D1H7TC3	M9711D1H7TC3	SOFT_TISSUE	PCTDRYWT	11.1		PCT
1997	DIL	M9711D1H7TC4	M9711D1H7TC4	SOFT_TISSUE	PCTDRYWT	11.9		PCT
1997	DIL	M9711D1H7TC5	M9711D1H7TC5	SOFT_TISSUE	PCTDRYWT	13.0		PCT
1997	DIL	M9711D1H8TC1	M9711D1H8TC1	SOFT_TISSUE	PCTDRYWT	16.6	j	PCT
1997	DIL	M9711D1H8TC2	M9711D1H8TC2	SOFT_TISSUE	PCTDRYWT	16.6	j	PCT
1997	DIL	M9711D1H8TC3	M9711D1H8TC3	SOFT_TISSUE	PCTDRYWT	16.6	j	PCT
1997	DIL	M9711D1H8TC4	M9711D1H8TC4	SOFT_TISSUE	PCTDRYWT	16.6	j	PCT
1997	DIL	M9711D1H8TC5	M9711D1H8TC5	SOFT_TISSUE	PCTDRYWT	16.6	j	PCT
1997	GL	M9711H7TC1	M9711H7TC1	SOFT_TISSUE	PCTDRYWT	16.0		PCT
1997	GL	M9711H7TC2	M9711H7TC2	SOFT_TISSUE	PCTDRYWT	16.9		PCT
1997	GL	M9711H7TC3	M9711H7TC3	SOFT_TISSUE	PCTDRYWT	17.9		PCT
1997	GL	M9711H7TC4	M9711H7TC4	SOFT_TISSUE	PCTDRYWT	17.1		PCT
1997	GL	M9711H7TC5	M9711H7TC5	SOFT_TISSUE	PCTDRYWT	17.7		PCT

Table C-10. Percent Dry Weight - Mussels 1991 – 2003.
(Continued)

Year	Station	Sample	Bottle	Fraction	Parameter	Value	Val Qual	Unit Code
1997	IH	M9711D6H7TC1	M9711D6H7TC1	SOFT_TISSUE	PCTDRYWT	16.1		PCT
1997	IH	M9711D6H7TC2	M9711D6H7TC2	SOFT_TISSUE	PCTDRYWT	13.6		PCT
1997	IH	M9711D6H7TC3	M9711D6H7TC3	SOFT_TISSUE	PCTDRYWT	12.4		PCT
1997	IH	M9711D6H7TC4	M9711D6H7TC4	SOFT_TISSUE	PCTDRYWT	13.2		PCT
1997	IH	M9711D6H7TC5	M9711D6H7TC5	SOFT_TISSUE	PCTDRYWT	12.9		PCT
1997	IH	M9711D6H8TC1	M9711D6H8TC1	SOFT_TISSUE	PCTDRYWT	17.4	j	PCT
1997	IH	M9711D6H8TC2	M9711D6H8TC2	SOFT_TISSUE	PCTDRYWT	17.4	j	PCT
1997	IH	M9711D6H8TC3	M9711D6H8TC3	SOFT_TISSUE	PCTDRYWT	17.4	j	PCT
1997	IH	M9711D6H8TC4	M9711D6H8TC4	SOFT_TISSUE	PCTDRYWT	17.4	j	PCT
1997	IH	M9711D6H8TC5	M9711D6H8TC5	SOFT_TISSUE	PCTDRYWT	17.4	j	PCT
1997	OSM	M9711D4H7TC1	M9711D4H7TC1	SOFT_TISSUE	PCTDRYWT	15.5		PCT
1997	OSM	M9711D4H7TC2	M9711D4H7TC2	SOFT_TISSUE	PCTDRYWT	15.7		PCT
1997	OSM	M9711D4H7TC3	M9711D4H7TC3	SOFT_TISSUE	PCTDRYWT	15.7		PCT
1997	OSM	M9711D4H7TC4	M9711D4H7TC4	SOFT_TISSUE	PCTDRYWT	15.0		PCT
1997	OSM	M9711D4H7TC5	M9711D4H7TC5	SOFT_TISSUE	PCTDRYWT	16.8		PCT
1997	OSM	M9711D4H8TC1	M9711D4H8TC1	SOFT_TISSUE	PCTDRYWT	19.6	j	PCT
1997	OSM	M9711D4H8TC2	M9711D4H8TC2	SOFT_TISSUE	PCTDRYWT	19.6	j	PCT
1997	OSM	M9711D4H8TC3	M9711D4H8TC3	SOFT_TISSUE	PCTDRYWT	19.6	j	PCT
1997	OSM	M9711D4H8TC4	M9711D4H8TC4	SOFT_TISSUE	PCTDRYWT	19.6	j	PCT
1997	OSM	M9711D4H8TC5	M9711D4H8TC5	SOFT_TISSUE	PCTDRYWT	19.6	j	PCT
1997	SA	M9711H8TC1	M9711H8TC1	SOFT_TISSUE	PCTDRYWT	22.1	j	PCT
1997	SA	M9711H8TC2	M9711H8TC2	SOFT_TISSUE	PCTDRYWT	22.1	j	PCT
1997	SA	M9711H8TC3	M9711H8TC3	SOFT_TISSUE	PCTDRYWT	22.1	j	PCT
1997	SA	M9711H8TC4	M9711H8TC4	SOFT_TISSUE	PCTDRYWT	22.1	j	PCT
1997	SA	M9711H8TC5	M9711H8TC5	SOFT_TISSUE	PCTDRYWT	22.1	j	PCT
1998	GL	FM9812GVX01	VX01	SOFT_TISSUE	PCTDRYWT	12.3		PCT
1998	GL	FM9812GVX02	VX02	SOFT_TISSUE	PCTDRYWT	10.6		PCT
1998	GL	FM9812GVX03	VX03	SOFT_TISSUE	PCTDRYWT	11.1		PCT
1998	GL	FM9812GVX04	VX04	SOFT_TISSUE	PCTDRYWT	10.4		PCT
1998	GL	FM9812GVX05	VX05	SOFT_TISSUE	PCTDRYWT	11.3		PCT
1998	SA	FM9811SVW64	VW64	SOFT_TISSUE	PCTDRYWT	18.4		PCT
1998	SA	FM9811SVW65	VW65	SOFT_TISSUE	PCTDRYWT	14.3		PCT
1998	SA	FM9811SVW66	VW66	SOFT_TISSUE	PCTDRYWT	15.9		PCT
1998	SA	FM9811SVW67	VW67	SOFT_TISSUE	PCTDRYWT	15.5		PCT
1998	SA	FM9811SVW68	VW68	SOFT_TISSUE	PCTDRYWT	14.2		PCT
1998	SA	FM9811SVX06	VX06	SOFT_TISSUE	PCTDRYWT	13.3		PCT
1998	DIL	FM9821GVX17	VX17	SOFT_TISSUE	PCTDRYWT	14.9		PCT
1998	DIL	FM9821GVX18	VX18	SOFT_TISSUE	PCTDRYWT	13.9		PCT
1998	DIL	FM9821GVX19	VX19	SOFT_TISSUE	PCTDRYWT	15.2		PCT
1998	DIL	FM9821GVX20	VX20	SOFT_TISSUE	PCTDRYWT	14.1		PCT
1998	DIL	FM9821GVX21	VX21	SOFT_TISSUE	PCTDRYWT	15.7		PCT
1998	DIL	FM9821SVW79	VW79	SOFT_TISSUE	PCTDRYWT	18.0		PCT
1998	DIL	FM9821SVW80	VW80	SOFT_TISSUE	PCTDRYWT	16.7		PCT

Table C-10. Percent Dry Weight - Mussels 1991 – 2003.
(Continued)

Year	Station	Sample	Bottle	Fraction	Parameter	Value	Val Qual	Unit Code
1998	DIL	FM9821SVW81	VW81	SOFT_TISSUE	PCTDRYWT	14.6		PCT
1998	DIL	FM9821SVW82	VW82	SOFT_TISSUE	PCTDRYWT	15.8		PCT
1998	DIL	FM9821SVW83	VW83	SOFT_TISSUE	PCTDRYWT	17.3		PCT
1998	OSM	FM9822GVX22	VX22	SOFT_TISSUE	PCTDRYWT	14.3		PCT
1998	OSM	FM9822GVX23	VX23	SOFT_TISSUE	PCTDRYWT	14.5		PCT
1998	OSM	FM9822GVX24	VX24	SOFT_TISSUE	PCTDRYWT	15.2		PCT
1998	OSM	FM9822GVX25	VX25	SOFT_TISSUE	PCTDRYWT	16.2		PCT
1998	OSM	FM9822GVX26	VX26	SOFT_TISSUE	PCTDRYWT	18.2		PCT
1998	OSM	FM9822GVX27	VX27	SOFT_TISSUE	PCTDRYWT	16.8		PCT
1998	OSM	FM9822GVX28	VX28	SOFT_TISSUE	PCTDRYWT	14.9		PCT
1998	OSM	FM9822GVX29	VX29	SOFT_TISSUE	PCTDRYWT	16.1		PCT
1998	OSM	FM9822SVW84	VW84	SOFT_TISSUE	PCTDRYWT	14.8		PCT
1998	OSM	FM9822SVW85	VW85	SOFT_TISSUE	PCTDRYWT	17.1		PCT
1998	OSM	FM9822SVW86	VW86	SOFT_TISSUE	PCTDRYWT	14.8		PCT
1998	OSM	FM9822SVW87	VW87	SOFT_TISSUE	PCTDRYWT	16.6		PCT
1998	OSM	FM9822SVW88	VW88	SOFT_TISSUE	PCTDRYWT	20.0		PCT
1998	OSM	FM9822SVW89	VW89	SOFT_TISSUE	PCTDRYWT	16.9		PCT
1998	OSM	FM9822SVW90	VW90	SOFT_TISSUE	PCTDRYWT	17.1		PCT
1998	OSM	FM9822SVW91	VW91	SOFT_TISSUE	PCTDRYWT	18.0		PCT
1998	CCB	FM9833GVX30	VX30	SOFT_TISSUE	PCTDRYWT	17.0		PCT
1998	CCB	FM9833GVX31	VX31	SOFT_TISSUE	PCTDRYWT	17.7		PCT
1998	CCB	FM9833GVX32	VX32	SOFT_TISSUE	PCTDRYWT	17.5		PCT
1998	CCB	FM9833GVX33	VX33	SOFT_TISSUE	PCTDRYWT	18.1		PCT
1998	CCB	FM9833GVX34	VX34	SOFT_TISSUE	PCTDRYWT	18.1		PCT
1998	CCB	FM9833GVX35	VX35	SOFT_TISSUE	PCTDRYWT	19.4		PCT
1998	CCB	FM9833GVX36	VX36	SOFT_TISSUE	PCTDRYWT	19.9		PCT
1998	CCB	FM9833GVX37	VX37	SOFT_TISSUE	PCTDRYWT	19.0		PCT
1998	CCB	FM9833SVW92	VW92	SOFT_TISSUE	PCTDRYWT	18.8		PCT
1998	CCB	FM9833SVW93	VW93	SOFT_TISSUE	PCTDRYWT	18.2		PCT
1998	CCB	FM9833SVW94	VW94	SOFT_TISSUE	PCTDRYWT	21.4		PCT
1998	CCB	FM9833SVW95	VW95	SOFT_TISSUE	PCTDRYWT	18.0		PCT
1998	CCB	FM9833SVW96	VW96	SOFT_TISSUE	PCTDRYWT	25.6		PCT
1998	CCB	FM9833SVW97	VW97	SOFT_TISSUE	PCTDRYWT	17.4		PCT
1998	CCB	FM9833SVW98	VW98	SOFT_TISSUE	PCTDRYWT	22.0		PCT
1998	CCB	FM9833SVW99	VW99	SOFT_TISSUE	PCTDRYWT	21.8		PCT
1998	IH	FM9832GVX12	VX12	SOFT_TISSUE	PCTDRYWT	11.7		PCT
1998	IH	FM9832GVX13	VX13	SOFT_TISSUE	PCTDRYWT	10.5		PCT
1998	IH	FM9832GVX14	VX14	SOFT_TISSUE	PCTDRYWT	10.0		PCT
1998	IH	FM9832GVX15	VX15	SOFT_TISSUE	PCTDRYWT	14.1		PCT
1998	IH	FM9832GVX16	VX16	SOFT_TISSUE	PCTDRYWT	13.5		PCT
1998	IH	FM9832SVW74	VW74	SOFT_TISSUE	PCTDRYWT	13.2		PCT
1998	IH	FM9832SVW75	VW75	SOFT_TISSUE	PCTDRYWT	15.7		PCT
1998	IH	FM9832SVW76	VW76	SOFT_TISSUE	PCTDRYWT	12.1		PCT

Table C-10. Percent Dry Weight - Mussels 1991 – 2003.
(Continued)

Year	Station	Sample	Bottle	Fraction	Parameter	Value	Val Qual	Unit Code
1998	IH	FM9832SVW77	VW77	SOFT_TISSUE	PCTDRYWT	16.1		PCT
1998	IH	FM9832SVW78	VW78	SOFT_TISSUE	PCTDRYWT	14.1		PCT
1999	GL	FM9912GXD74	XD74	SOFT_TISSUE	PCTDRYWT	14.0		PCT
1999	GL	FM9912GXD75	XD75	SOFT_TISSUE	PCTDRYWT	12.6		PCT
1999	GL	FM9912GXD76	XD76	SOFT_TISSUE	PCTDRYWT	12.8		PCT
1999	GL	FM9912GXD77	XD77	SOFT_TISSUE	PCTDRYWT	12.5		PCT
1999	GL	FM9912GXD78	XD78	SOFT_TISSUE	PCTDRYWT	12.4		PCT
1999	SA	FM9911SXE01	XE01	SOFT_TISSUE	PCTDRYWT	11.4		PCT
1999	SA	FM9911SXE02	XE02	SOFT_TISSUE	PCTDRYWT	23.8		PCT
1999	SA	FM9911SXE03	XE03	SOFT_TISSUE	PCTDRYWT	20.8		PCT
1999	SA	FM9911SXE04	XE04	SOFT_TISSUE	PCTDRYWT	22.8		PCT
1999	SA	FM9911SXE05	XE05	SOFT_TISSUE	PCTDRYWT	20.5		PCT
1999	CCB	FM9933GXD92	XD92	SOFT_TISSUE	PCTDRYWT	21.6		PCT
1999	CCB	FM9933GXD93	XD93	SOFT_TISSUE	PCTDRYWT	18.8		PCT
1999	CCB	FM9933GXD94	XD94	SOFT_TISSUE	PCTDRYWT	20.3		PCT
1999	CCB	FM9933GXD95	XD95	SOFT_TISSUE	PCTDRYWT	21.7		PCT
1999	CCB	FM9933GXD96	XD96	SOFT_TISSUE	PCTDRYWT	17.1		PCT
1999	CCB	FM9933GXD97	XD97	SOFT_TISSUE	PCTDRYWT	20.7		PCT
1999	CCB	FM9933GXD98	XD98	SOFT_TISSUE	PCTDRYWT	20.6		PCT
1999	CCB	FM9933GXD99	XD99	SOFT_TISSUE	PCTDRYWT	20.0		PCT
1999	CCB	FM9933SXE19	XE19	SOFT_TISSUE	PCTDRYWT	23.1		PCT
1999	CCB	FM9933SXE20	XE20	SOFT_TISSUE	PCTDRYWT	23.2		PCT
1999	CCB	FM9933SXE21	XE21	SOFT_TISSUE	PCTDRYWT	21.3		PCT
1999	CCB	FM9933SXE22	XE22	SOFT_TISSUE	PCTDRYWT	23.9		PCT
1999	CCB	FM9933SXE23	XE23	SOFT_TISSUE	PCTDRYWT	22.1		PCT
1999	CCB	FM9933SXE24	XE24	SOFT_TISSUE	PCTDRYWT	23.2		PCT
1999	CCB	FM9933SXE25	XE25	SOFT_TISSUE	PCTDRYWT	23.6		PCT
1999	CCB	FM9933SXE26	XE26	SOFT_TISSUE	PCTDRYWT	25.4		PCT
1999	IH	FM9931GXD79	XD79	SOFT_TISSUE	PCTDRYWT	9.4		PCT
1999	IH	FM9931GXD80	XD80	SOFT_TISSUE	PCTDRYWT	10.7		PCT
1999	IH	FM9931GXD81	XD81	SOFT_TISSUE	PCTDRYWT	11.9		PCT
1999	IH	FM9931GXD82	XD82	SOFT_TISSUE	PCTDRYWT	13.6		PCT
1999	IH	FM9931GXD83	XD83	SOFT_TISSUE	PCTDRYWT	12.9		PCT
1999	IH	FM9931SXE06	XE06	SOFT_TISSUE	PCTDRYWT	18.8		PCT
1999	IH	FM9931SXE07	XE07	SOFT_TISSUE	PCTDRYWT	18.1		PCT
1999	IH	FM9931SXE08	XE08	SOFT_TISSUE	PCTDRYWT	20.0		PCT
1999	IH	FM9931SXE09	XE09	SOFT_TISSUE	PCTDRYWT	19.6		PCT
1999	IH	FM9931SXE10	XE10	SOFT_TISSUE	PCTDRYWT	19.2		PCT
1999	OSM	FM9932GXD84	XD84	SOFT_TISSUE	PCTDRYWT	16.8		PCT
1999	OSM	FM9932GXD85	XD85	SOFT_TISSUE	PCTDRYWT	18.5		PCT
1999	OSM	FM9932GXD86	XD86	SOFT_TISSUE	PCTDRYWT	18.2		PCT
1999	OSM	FM9932GXD87	XD87	SOFT_TISSUE	PCTDRYWT	18.5		PCT
1999	OSM	FM9932GXD88	XD88	SOFT_TISSUE	PCTDRYWT	19.0		PCT
1999	OSM	FM9932GXD89	XD89	SOFT_TISSUE	PCTDRYWT	18.7		PCT

Table C-10. Percent Dry Weight - Mussels 1991 – 2003.
(Continued)

Year	Station	Sample	Bottle	Fraction	Parameter	Value	Val Qual	Unit Code
1999	OSM	FM9932GXD90	XD90	SOFT_TISSUE	PCTDRYWT	19.9		PCT
1999	OSM	FM9932GXD91	XD91	SOFT_TISSUE	PCTDRYWT	18.9		PCT
1999	OSM	FM9932SXE11	XE11	SOFT_TISSUE	PCTDRYWT	19.8		PCT
1999	OSM	FM9932SXE12	XE12	SOFT_TISSUE	PCTDRYWT	21.6		PCT
1999	OSM	FM9932SXE13	XE13	SOFT_TISSUE	PCTDRYWT	20.6		PCT
1999	OSM	FM9932SXE14	XE14	SOFT_TISSUE	PCTDRYWT	20.8		PCT
1999	OSM	FM9932SXE15	XE15	SOFT_TISSUE	PCTDRYWT	20.7		PCT
1999	OSM	FM9932SXE16	XE16	SOFT_TISSUE	PCTDRYWT	19.4		PCT
1999	OSM	FM9932SXE17	XE17	SOFT_TISSUE	PCTDRYWT	21.6		PCT
1999	OSM	FM9932SXE18	XE18	SOFT_TISSUE	PCTDRYWT	20.8		PCT
2000	RP	FM001RPYE44	YE44	SOFT_TISSUE	PCTDRYWT	9.6		PCT
2000	RP	FM001RPYE45	YE45	SOFT_TISSUE	PCTDRYWT	10.3		PCT
2000	RP	FM001RPYE46	YE46	SOFT_TISSUE	PCTDRYWT	10.9		PCT
2000	RP	FM001RPYE47	YE47	SOFT_TISSUE	PCTDRYWT	9.3		PCT
2000	RP	FM001RPYE48	YE48	SOFT_TISSUE	PCTDRYWT	10.6		PCT
2000	RP	FM001RPYE67	YE67	SOFT_TISSUE	PCTDRYWT	9.0		PCT
2000	RP	FM001RPYE68	YE68	SOFT_TISSUE	PCTDRYWT	8.8		PCT
2000	RP	FM001RPYE69	YE69	SOFT_TISSUE	PCTDRYWT	8.6		PCT
2000	RP	FM001RPYE70	YE70	SOFT_TISSUE	PCTDRYWT	8.5		PCT
2000	RP	FM001RPYE71	YE71	SOFT_TISSUE	PCTDRYWT	8.3		PCT
2000	DIL	FM0031YE54	YE54	SOFT_TISSUE	PCTDRYWT	14.6		PCT
2000	DIL	FM0031YE55	YE55	SOFT_TISSUE	PCTDRYWT	10.9		PCT
2000	DIL	FM0031YE56	YE56	SOFT_TISSUE	PCTDRYWT	9.0		PCT
2000	DIL	FM0031YE57	YE57	SOFT_TISSUE	PCTDRYWT	11.2		PCT
2000	DIL	FM0031YE58	YE58	SOFT_TISSUE	PCTDRYWT	12.1		PCT
2000	DIL	FM0031YE77	YE77	SOFT_TISSUE	PCTDRYWT	13.7		PCT
2000	DIL	FM0031YE78	YE78	SOFT_TISSUE	PCTDRYWT	13.6		PCT
2000	DIL	FM0031YE79	YE79	SOFT_TISSUE	PCTDRYWT	12.5		PCT
2000	DIL	FM0031YE80	YE80	SOFT_TISSUE	PCTDRYWT	12.9		PCT
2000	DIL	FM0031YE81	YE81	SOFT_TISSUE	PCTDRYWT	13.0		PCT
2000	IH	FM0036YE49	YE49	SOFT_TISSUE	PCTDRYWT	10.1		PCT
2000	IH	FM0036YE50	YE50	SOFT_TISSUE	PCTDRYWT	9.3		PCT
2000	IH	FM0036YE51	YE51	SOFT_TISSUE	PCTDRYWT	10.3		PCT
2000	IH	FM0036YE52	YE52	SOFT_TISSUE	PCTDRYWT	9.4		PCT
2000	IH	FM0036YE53	YE53	SOFT_TISSUE	PCTDRYWT	9.3		PCT
2000	IH	FM0036YE72	YE72	SOFT_TISSUE	PCTDRYWT	10.2		PCT
2000	IH	FM0036YE73	YE73	SOFT_TISSUE	PCTDRYWT	10.5		PCT
2000	IH	FM0036YE74	YE74	SOFT_TISSUE	PCTDRYWT	10.5		PCT
2000	IH	FM0036YE75	YE75	SOFT_TISSUE	PCTDRYWT	10.3		PCT
2000	IH	FM0036YE76	YE76	SOFT_TISSUE	PCTDRYWT	10.1		PCT
2000	OSM	FM0034YE59	YE59	SOFT_TISSUE	PCTDRYWT	12.4		PCT
2000	OSM	FM0034YE60	YE60	SOFT_TISSUE	PCTDRYWT	15.1		PCT
2000	OSM	FM0034YE61	YE61	SOFT_TISSUE	PCTDRYWT	13.1		PCT
2000	OSM	FM0034YE62	YE62	SOFT_TISSUE	PCTDRYWT	12.7		PCT

Table C-10. Percent Dry Weight - Mussels 1991 – 2003.
(Continued)

Year	Station	Sample	Bottle	Fraction	Parameter	Value	Val Qual	Unit Code
2000	OSM	FM0034YE63	YE63	SOFT_TISSUE	PCTDRYWT	12.2		PCT
2000	OSM	FM0034YE64	YE64	SOFT_TISSUE	PCTDRYWT	11.2		PCT
2000	OSM	FM0034YE65	YE65	SOFT_TISSUE	PCTDRYWT	11.4		PCT
2000	OSM	FM0034YE66	YE66	SOFT_TISSUE	PCTDRYWT	13.3		PCT
2000	OSM	FM0034YE82	YE82	SOFT_TISSUE	PCTDRYWT	11.8		PCT
2000	OSM	FM0034YE83	YE83	SOFT_TISSUE	PCTDRYWT	13.5		PCT
2000	OSM	FM0034YE84	YE84	SOFT_TISSUE	PCTDRYWT	14.2		PCT
2000	OSM	FM0034YE85	YE85	SOFT_TISSUE	PCTDRYWT	14.4		PCT
2000	OSM	FM0034YE86	YE86	SOFT_TISSUE	PCTDRYWT	14.5		PCT
2000	OSM	FM0034YE87	YE87	SOFT_TISSUE	PCTDRYWT	14.4		PCT
2000	OSM	FM0034YE88	YE88	SOFT_TISSUE	PCTDRYWT	14.6		PCT
2000	OSM	FM0034YE89	YE89	SOFT_TISSUE	PCTDRYWT	14.0		PCT
2001	RP	FM011ZA69	ZA69	SOFT_TISSUE	PCTDRYWT	7.6		PCT
2001	RP	FM011ZA70	ZA70	SOFT_TISSUE	PCTDRYWT	9.9		PCT
2001	RP	FM011ZA71	ZA71	SOFT_TISSUE	PCTDRYWT	8.8		PCT
2001	RP	FM011ZA72	ZA72	SOFT_TISSUE	PCTDRYWT	9.4		PCT
2001	RP	FM011ZA73	ZA73	SOFT_TISSUE	PCTDRYWT	9.3		PCT
2001	CCB	FM011ZH80	ZH80	SOFT_TISSUE	PCTDRYWT	16.1		PCT
2001	CCB	FM011ZH81	ZH81	SOFT_TISSUE	PCTDRYWT	17.0		PCT
2001	CCB	FM011ZH82	ZH82	SOFT_TISSUE	PCTDRYWT	17.5		PCT
2001	CCB	FM011ZH83	ZH83	SOFT_TISSUE	PCTDRYWT	19.6		PCT
2001	CCB	FM011ZH84	ZH84	SOFT_TISSUE	PCTDRYWT	18.6		PCT
2001	CCB	FM011ZH85	ZH85	SOFT_TISSUE	PCTDRYWT	18.6		PCT
2001	CCB	FM011ZH86	ZH86	SOFT_TISSUE	PCTDRYWT	20.8		PCT
2001	CCB	FM011ZH87	ZH87	SOFT_TISSUE	PCTDRYWT	20.3		PCT
2001	DIL	FM011ZH67	ZH67	SOFT_TISSUE	PCTDRYWT	13.1		PCT
2001	DIL	FM011ZH68	ZH68	SOFT_TISSUE	PCTDRYWT	14.6		PCT
2001	DIL	FM011ZH69	ZH69	SOFT_TISSUE	PCTDRYWT	14.5		PCT
2001	DIL	FM011ZH70	ZH70	SOFT_TISSUE	PCTDRYWT	14.3		PCT
2001	DIL	FM011ZH71	ZH71	SOFT_TISSUE	PCTDRYWT	12.6		PCT
2001	IH	FM011ZH62	ZH62	SOFT_TISSUE	PCTDRYWT	8.1		PCT
2001	IH	FM011ZH63	ZH63	SOFT_TISSUE	PCTDRYWT	8.9		PCT
2001	IH	FM011ZH64	ZH64	SOFT_TISSUE	PCTDRYWT	10.1		PCT
2001	IH	FM011ZH65	ZH65	SOFT_TISSUE	PCTDRYWT	11.1		PCT
2001	IH	FM011ZH66	ZH66	SOFT_TISSUE	PCTDRYWT	9.8		PCT
2001	LNB	FM011ZP19	ZP19	SOFT_TISSUE	PCTDRYWT	12.5		PCT
2001	LNB	FM011ZP20	ZP20	SOFT_TISSUE	PCTDRYWT	11.6		PCT
2001	LNB	FM011ZP21	ZP21	SOFT_TISSUE	PCTDRYWT	12.5		PCT
2001	LNB	FM011ZP22	ZP22	SOFT_TISSUE	PCTDRYWT	12.9		PCT
2001	LNB	FM011ZP23	ZP23	SOFT_TISSUE	PCTDRYWT	11.4		PCT
2001	LNB	FM011ZP24	ZP24	SOFT_TISSUE	PCTDRYWT	11.2		PCT
2001	LNB	FM011ZP25	ZP25	SOFT_TISSUE	PCTDRYWT	12.5		PCT
2001	LNB	FM011ZP26	ZP26	SOFT_TISSUE	PCTDRYWT	11.3		PCT
2001	OS-M1	FM011ZP11	ZP11	SOFT_TISSUE	PCTDRYWT	12.0		PCT

Table C-10. Percent Dry Weight - Mussels 1991 – 2003.
(Continued)

Year	Station	Sample	Bottle	Fraction	Parameter	Value	Val Qual	Unit Code
2001	OS-M1	FM011ZP12	ZP12	SOFT_TISSUE	PCTDRYWT	13.2		PCT
2001	OS-M1	FM011ZP13	ZP13	SOFT_TISSUE	PCTDRYWT	12.5		PCT
2001	OS-M1	FM011ZP14	ZP14	SOFT_TISSUE	PCTDRYWT	13.9		PCT
2001	OS-M1	FM011ZP15	ZP15	SOFT_TISSUE	PCTDRYWT	13.9		PCT
2001	OS-M1	FM011ZP16	ZP16	SOFT_TISSUE	PCTDRYWT	13.0		PCT
2001	OS-M1	FM011ZP17	ZP17	SOFT_TISSUE	PCTDRYWT	12.7		PCT
2001	OS-M1	FM011ZP18	ZP18	SOFT_TISSUE	PCTDRYWT	13.4		PCT
2001	OS-M1	FM011ZP27	ZP27	SOFT_TISSUE	PCTDRYWT	11.5		PCT
2001	OS-M1	FM011ZP28	ZP28	SOFT_TISSUE	PCTDRYWT	11.3		PCT
2001	OS-M1	FM011ZP29	ZP29	SOFT_TISSUE	PCTDRYWT	11.3		PCT
2001	OS-M1	FM011ZP30	ZP30	SOFT_TISSUE	PCTDRYWT	12.3		PCT
2001	OS-M1	FM011ZP31	ZP31	SOFT_TISSUE	PCTDRYWT	11.5		PCT
2001	OS-M1	FM011ZP32	ZP32	SOFT_TISSUE	PCTDRYWT	13.6		PCT
2001	OS-M1	FM011ZP33	ZP33	SOFT_TISSUE	PCTDRYWT	10.3		PCT
2001	OS-M1	FM011ZP34	ZP34	SOFT_TISSUE	PCTDRYWT	12.7		PCT
2001	OSR	FM011ZH72	ZH72	SOFT_TISSUE	PCTDRYWT	12.6		PCT
2001	OSR	FM011ZH73	ZH73	SOFT_TISSUE	PCTDRYWT	12.6		PCT
2001	OSR	FM011ZH74	ZH74	SOFT_TISSUE	PCTDRYWT	12.3		PCT
2001	OSR	FM011ZH75	ZH75	SOFT_TISSUE	PCTDRYWT	14.2		PCT
2001	OSR	FM011ZH76	ZH76	SOFT_TISSUE	PCTDRYWT	15.3		PCT
2001	OSR	FM011ZH77	ZH77	SOFT_TISSUE	PCTDRYWT	14.8		PCT
2001	OSR	FM011ZH78	ZH78	SOFT_TISSUE	PCTDRYWT	15.0		PCT
2001	OSR	FM011ZH79	ZH79	SOFT_TISSUE	PCTDRYWT	19.0		PCT
2002	SP	FM021V8116	V8116	SOFT_TISSUE	PCTDRYWT	10.4		PCT
2002	SP	FM021V8117	V8117	SOFT_TISSUE	PCTDRYWT	9.6		PCT
2002	SP	FM021V8118	V8118	SOFT_TISSUE	PCTDRYWT	10.4		PCT
2002	SP	FM021V8119	V8119	SOFT_TISSUE	PCTDRYWT	11.4		PCT
2002	SP	FM021V8120	V8120	SOFT_TISSUE	PCTDRYWT	11.3		PCT
2002	CCB	FM021V8143	V8143	SOFT_TISSUE	PCTDRYWT	13.7		PCT
2002	CCB	FM021V8144	V8144	SOFT_TISSUE	PCTDRYWT	13.7		PCT
2002	CCB	FM021V8145	V8145	SOFT_TISSUE	PCTDRYWT	12.8		PCT
2002	CCB	FM021V8146	V8146	SOFT_TISSUE	PCTDRYWT	14.0		PCT
2002	CCB	FM021V8143	V8143	SOFT_TISSUE	PCTDRYWT	13.7		PCT
2002	DIL	FM021V8126	V8126	SOFT_TISSUE	PCTDRYWT	8.5		PCT
2002	DIL	FM021V8127	V8127	SOFT_TISSUE	PCTDRYWT	8.9		PCT
2002	DIL	FM021V8128	V8128	SOFT_TISSUE	PCTDRYWT	11.2		PCT
2002	DIL	FM021V8129	V8129	SOFT_TISSUE	PCTDRYWT	10.4		PCT
2002	DIL	FM021V8130	V8130	SOFT_TISSUE	PCTDRYWT	9.5		PCT
2002	IH	FM021V8121	V8121	SOFT_TISSUE	PCTDRYWT	8.6		PCT
2002	IH	FM021V8122	V8122	SOFT_TISSUE	PCTDRYWT	7.1		PCT
2002	IH	FM021V8123	V8123	SOFT_TISSUE	PCTDRYWT	8.1		PCT
2002	IH	FM021V8124	V8124	SOFT_TISSUE	PCTDRYWT	7.8		PCT
2002	IH	FM021V8125	V8125	SOFT_TISSUE	PCTDRYWT	8.7		PCT
2002	LNB	FM021V8139	V8139	SOFT_TISSUE	PCTDRYWT	12.5		PCT

Table C-10. Percent Dry Weight - Mussels 1991 – 2003.
(Continued)

Year	Station	Sample	Bottle	Fraction	Parameter	Value	Val Qual	Unit Code
2002	LNB	FM021V8140	V8140	SOFT_TISSUE	PCTDRYWT	12.7		PCT
2002	LNB	FM021V8141	V8141	SOFT_TISSUE	PCTDRYWT	12.0		PCT
2002	LNB	FM021V8142	V8142	SOFT_TISSUE	PCTDRYWT	14.1		PCT
2002	OS-M1	FM021V8131	V8131	SOFT_TISSUE	PCTDRYWT	12.3		PCT
2002	OS-M1	FM021V8132	V8132	SOFT_TISSUE	PCTDRYWT	13.3		PCT
2002	OS-M1	FM021V8133	V8133	SOFT_TISSUE	PCTDRYWT	13.1		PCT
2002	OS-M1	FM021V8134	V8134	SOFT_TISSUE	PCTDRYWT	13.0		PCT
2002	OS-M2	FM021V8135	V8135	SOFT_TISSUE	PCTDRYWT	12.8		PCT
2002	OS-M2	FM021V8136	V8136	SOFT_TISSUE	PCTDRYWT	12.8		PCT
2002	OS-M5	FM021V8137	V8137	SOFT_TISSUE	PCTDRYWT	14.5		PCT
2002	OS-M5	FM021V8138	V8138	SOFT_TISSUE	PCTDRYWT	13.0		PCT
2003	SP	FM031T5665	T5665	SOFT_TISSUE	PCTDRYWT	12.8		PCT
2003	SP	FM031T5666	T5666	SOFT_TISSUE	PCTDRYWT	13.7		PCT
2003	SP	FM031T5667	T5667	SOFT_TISSUE	PCTDRYWT	12.4		PCT
2003	SP	FM031T5668	T5668	SOFT_TISSUE	PCTDRYWT	13.4		PCT
2003	SP	FM031T5669	T5669	SOFT_TISSUE	PCTDRYWT	14.7		PCT
2003	CCB	FM031T6988	T6988	SOFT_TISSUE	PCTDRYWT	17.5		PCT
2003	CCB	FM031T6989	T6989	SOFT_TISSUE	PCTDRYWT	17.9		PCT
2003	CCB	FM031T6990	T6990	SOFT_TISSUE	PCTDRYWT	17.4		PCT
2003	CCB	FM031T6991	T6991	SOFT_TISSUE	PCTDRYWT	18.1		PCT
2003	DIL	FM031T6971	T6971	SOFT_TISSUE	PCTDRYWT	10.0		PCT
2003	DIL	FM031T6972	T6972	SOFT_TISSUE	PCTDRYWT	9.8		PCT
2003	DIL	FM031T6973	T6973	SOFT_TISSUE	PCTDRYWT	11.3		PCT
2003	DIL	FM031T6974	T6974	SOFT_TISSUE	PCTDRYWT	12.6		PCT
2003	DIL	FM031T6975	T6975	SOFT_TISSUE	PCTDRYWT	15.0		PCT
2003	IH	FM031T6966	T6966	SOFT_TISSUE	PCTDRYWT	8.0		PCT
2003	IH	FM031T6967	T6967	SOFT_TISSUE	PCTDRYWT	7.4		PCT
2003	IH	FM031T6968	T6968	SOFT_TISSUE	PCTDRYWT	8.2		PCT
2003	IH	FM031T6969	T6969	SOFT_TISSUE	PCTDRYWT	8.9		PCT
2003	IH	FM031T6970	T6970	SOFT_TISSUE	PCTDRYWT	7.4		PCT
2003	LNB	FM031T6984	T6984	SOFT_TISSUE	PCTDRYWT	16.2		PCT
2003	LNB	FM031T6985	T6985	SOFT_TISSUE	PCTDRYWT	17.1		PCT
2003	LNB	FM031T6986	T6986	SOFT_TISSUE	PCTDRYWT	17.5		PCT
2003	LNB	FM031T6987	T6987	SOFT_TISSUE	PCTDRYWT	17.2		PCT
2003	OS-M1	FM031T6976	T6976	SOFT_TISSUE	PCTDRYWT	12.6		PCT
2003	OS-M1	FM031T6977	T6977	SOFT_TISSUE	PCTDRYWT	14.4		PCT
2003	OS-M1	FM031T6978	T6978	SOFT_TISSUE	PCTDRYWT	11.7		PCT
2003	OS-M1	FM031T6979	T6979	SOFT_TISSUE	PCTDRYWT	12.1		PCT
2003	OS-M4	FM031T6980	T6980	SOFT_TISSUE	PCTDRYWT	13.3		PCT
2003	OS-M4	FM031T6981	T6981	SOFT_TISSUE	PCTDRYWT	12.7		PCT
2003	OS-M6	FM031T6982	T6982	SOFT_TISSUE	PCTDRYWT	14.2		PCT
2003	OS-M6	FM031T6983	T6983	SOFT_TISSUE	PCTDRYWT	13.9		PCT

Table C-11. Flounder Fillet Chemistry Data, 1991 – 2003.

Parameter	Tissue	Year	Means					SE					N				
			DIF	NB	BS	OS	ECCB	DIF	NB	BS	OS	ECCB	DIF	NB	BS	OS	ECCB
Mercury	Fillets	1992	0.279	0.539	0.565	0.473	0.096	0.000	0.000	0.000	0.000	0.000	0	0	0	0	0
Mercury	Fillets	1993	0.460	NA	NA	0.413	0.186	0.105	NA	NA	0.075	0.030	10	NA	NA	9	10
Mercury	Fillets	1994	0.283	0.378	0.477	0.434	0.120	0.032	0.014	0.105	0.090	0.006	3	3	3	3	3
Mercury	Fillets	1995	0.404	NA	NA	0.312	0.104	0.016	NA	NA	0.043	0.012	3	NA	NA	3	3
Mercury	Fillets	1996	0.460	0.497	0.378	0.547	0.400	0.069	0.066	0.075	0.150	0.028	3	3	3	3	3
Mercury	Fillets	1997	0.511	NA	NA	0.276	0.195	0.089	NA	NA	0.198	0.020	3	NA	NA	3	3
Mercury	Fillets	1998	0.234	NA	NA	0.328	0.136	0.012	NA	NA	0.038	0.023	3	NA	NA	3	3
Mercury	Fillets	1999	0.352	0.525	0.417	0.540	0.224	0.009	0.067	0.013	0.044	0.012	3	3	3	3	3
Mercury	Fillets	2000	0.394	NA	NA	0.482	0.202	0.078	NA	NA	0.142	0.021	3	NA	NA	3	3
Mercury	Fillets	2001	0.358	NA	NA	0.486	0.179	0.043	NA	NA	0.030	0.040	3	NA	NA	3	3
Mercury	Fillets	2002	0.359	0.363	0.347	0.379	0.194	0.039	0.031	0.021	0.067	0.021	3	3	3	3	3
Mercury	Fillets	2003	0.39	NA	NA	0.66	0.28	0.016	NA	NA	0.071	0.035	3	NA	NA	3	3
Total DDT	Fillets	1992	37.96	17.00	37.46	19.91	10.68	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0
Total DDT	Fillets	1993	31.57	NA	NA	27.08	12.40	5.77	NA	NA	4.09	1.62	10	NA	NA	9	10
Total DDT	Fillets	1994	43.83	18.59	24.76	22.66	13.82	2.38	0.93	3.49	1.33	0.88	3	3	3	3	3
Total DDT	Fillets	1995	43.23	NA	NA	23.13	27.47	16.63	NA	NA	2.66	1.88	3	NA	NA	3	3
Total DDT	Fillets	1996	32.07	19.90	17.39	19.28	9.81	2.53	0.49	2.55	4.62	2.01	3	3	3	3	3
Total DDT	Fillets	1997	46.27	NA	NA	22.47	13.41	3.75	NA	NA	4.80	1.93	3	NA	NA	3	3
Total DDT	Fillets	1998	30.06	NA	NA	12.30	6.37	2.54	NA	NA	4.18	0.41	3	NA	NA	3	3
Total DDT	Fillets	1999	21.40	23.29	17.07	22.31	11.74	1.33	1.62	2.49	4.45	1.20	3	3	3	3	3
Total DDT	Fillets	2000	18.30	NA	NA	9.94	6.74	2.60	NA	NA	0.40	0.57	3	NA	NA	3	3
Total DDT	Fillets	2001	28.09	NA	NA	12.05	8.20	2.10	NA	NA	1.65	0.15	3	NA	NA	3	3
Total DDT	Fillets	2002	17.24	10.32	13.16	10.98	5.42	1.17	0.67	1.27	2.07	0.85	3	3	3	3	3
Total DDT	Fillets	2003	30.31	NA	NA	13.42	7.88	1.488	NA	NA	1.977	2.613	3	NA	NA	3	3
Total PCB	Fillets	1992	343.21	159.25	281.24	172.72	62.49	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0
Total PCB	Fillets	1993	197.09	NA	NA	211.58	55.43	29.98	NA	NA	38.88	8.31	10	NA	NA	9	10
Total PCB	Fillets	1994	520.05	150.59	194.17	249.88	60.23	34.98	18.19	33.94	32.54	5.75	3	3	3	3	3
Total PCB	Fillets	1995	613.88	NA	NA	237.16	107.61	176.48	NA	NA	15.01	5.60	3	NA	NA	3	3
Total PCB	Fillets	1996	285.76	227.83	141.75	194.68	65.69	29.69	15.67	8.90	42.59	10.86	3	3	3	3	3
Total PCB	Fillets	1997	325.09	NA	NA	206.67	62.78	37.38	NA	NA	30.71	6.69	3	NA	NA	3	3
Total PCB	Fillets	1998	238.43	NA	NA	105.61	39.42	17.85	NA	NA	34.73	2.09	3	NA	NA	3	3
Total PCB	Fillets	1999	141.52	133.25	111.41	166.19	51.70	4.43	11.18	7.73	41.14	5.80	3	3	3	3	3

Table C-11. Flounder Fillet Chemistry Data, 1991 – 2003. (Continued)

Parameter	Tissue	Year	Means					SE					N				
			DIF	NB	BS	OS	ECCB	DIF	NB	BS	OS	ECCB	DIF	NB	BS	OS	ECCB
Total PCB	Fillets	2000	203.29	NA	NA	117.59	39.46	24.23	NA	NA	9.21	1.98	3	NA	NA	3	3
Total PCB	Fillets	2001	348.60	NA	NA	157.76	51.34	23.52	NA	NA	11.85	2.06	3	NA	NA	3	3
Total PCB	Fillets	2002	211.37	116.78	146.78	143.05	36.12	10.35	4.78	14.08	31.27	3.64	3	3	3	3	3
Total PCB	Fillets	2003	345.47	NA	NA	189.61	49.69	20.493	NA	NA	17.38	13.393	3	NA	NA	3	3
Total Chlordane	Fillets	1992	22.11	7.44	15.78	6.94	2.91	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0
Total Chlordane	Fillets	1993	15.40	NA	NA	16.20	4.80	2.61	NA	NA	3.97	0.87	10	NA	NA	9	10
Total Chlordane	Fillets	1994	18.78	5.57	7.61	7.55	2.93	1.71	1.27	0.95	0.74	0.03	3	3	3	3	3
Total Chlordane	Fillets	1995	15.47	NA	NA	5.77	4.63	3.32	NA	NA	0.47	0.19	3	NA	NA	3	3
Total Chlordane	Fillets	1996	11.30	6.87	5.40	3.67	1.08	0.31	1.13	0.31	0.47	0.55	3	3	3	3	3
Total Chlordane	Fillets	1997	13.93	NA	NA	5.66	1.66	1.27	NA	NA	0.68	0.20	3	NA	NA	3	3
Total Chlordane	Fillets	1998	13.86	NA	NA	5.54	1.29	1.15	NA	NA	1.93	0.09	3	NA	NA	3	3
Total Chlordane	Fillets	1999	9.73	10.10	8.84	7.12	2.34	0.34	1.16	0.90	2.79	0.49	3	3	3	3	3
Total Chlordane	Fillets	2000	10.03	NA	NA	3.25	1.91	1.97	NA	NA	0.47	0.03	3	NA	NA	3	3
Total Chlordane	Fillets	2001	10.38	NA	NA	2.92	1.74	0.89	NA	NA	0.44	0.09	3	NA	NA	3	3
Total Chlordane	Fillets	2002	6.03	2.38	4.76	3.26	1.31	0.16	0.28	0.94	0.15	0.06	3	3	3	3	3
Total Chlordane	Fillets	2003	9.18	NA	NA	3.28	1.57	1.488	NA	NA	0.563	0.557	3	NA	NA	3	3
Aldrin	Fillets	1992	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0
Aldrin	Fillets	1993	0.00	NA	NA	0.00	0.00	0.00	NA	NA	0.00	0.00	10	NA	NA	9	10
Aldrin	Fillets	1994	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3	3	3
Aldrin	Fillets	1995	0.00	NA	NA	0.00	0.00	0.00	NA	NA	0.00	0.00	3	NA	NA	3	3
Aldrin	Fillets	1996	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3	3	3
Aldrin	Fillets	1997	0.00	NA	NA	0.00	0.00	0.00	NA	NA	0.00	0.00	3	NA	NA	3	3
Aldrin	Fillets	1998	0.00	NA	NA	0.00	0.00	0.00	NA	NA	0.00	0.00	3	NA	NA	3	3
Aldrin	Fillets	1999	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3	3	3
Aldrin	Fillets	2000	0.00	NA	NA	0.00	0.00	0.00	NA	NA	0.00	0.00	3	NA	NA	3	3
Aldrin	Fillets	2001	0.00	NA	NA	0.00	0.00	0.00	NA	NA	0.00	0.00	3	NA	NA	3	3
Aldrin	Fillets	2002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3	3	3
Aldrin	Fillets	2003	0.00	NA	NA	0.00	0.00	0.000	NA	NA	0.000	0.000	3	NA	NA	3	3
Dieldrin	Fillets	1992	2.40	1.88	1.65	1.14	1.04	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0
Dieldrin	Fillets	1993	3.30	NA	NA	2.96	2.02	0.34	NA	NA	0.64	0.17	10	NA	NA	9	10

Table C-11. Flounder Fillet Chemistry Data, 1991 – 2003. (Continued)

Parameter	Tissue	Year	Means					SE					N				
			DIF	NB	BS	OS	ECCB	DIF	NB	BS	OS	ECCB	DIF	NB	BS	OS	ECCB
Dieldrin	Fillets	1994	3.56	1.15	1.25	1.37	1.33	0.44	0.09	0.17	0.14	0.05	3	3	3	3	3
Dieldrin	Fillets	1995	3.00	NA	NA	1.10	0.00	1.61	NA	NA	0.55	0.00	3	NA	NA	3	3
Dieldrin	Fillets	1996	2.00	1.23	0.59	1.07	1.03	0.62	0.12	0.30	0.29	0.04	3	3	3	3	3
Dieldrin	Fillets	1997	2.97	NA	NA	1.73	1.08	0.24	NA	NA	0.09	0.11	3	NA	NA	3	3
Dieldrin	Fillets	1998	2.49	NA	NA	1.16	0.68	0.14	NA	NA	0.32	0.03	3	NA	NA	3	3
Dieldrin	Fillets	1999	3.72	2.97	2.67	4.79	0.74	1.10	0.17	0.43	1.72	0.18	3	3	3	3	3
Dieldrin	Fillets	2000	1.54	NA	NA	0.59	0.43	0.47	NA	NA	0.10	0.07	3	NA	NA	3	3
Dieldrin	Fillets	2001	2.84	NA	NA	1.37	1.08	0.16	NA	NA	0.16	0.04	3	NA	NA	3	3
Dieldrin	Fillets	2002	0.75	0.36	0.50	0.46	0.41	0.11	0.04	0.03	0.08	0.03	3	3	3	3	3
Dieldrin	Fillets	2003	1.35	NA	NA	0.69	1.13	0.010	NA	NA	0.042	0.570	3	NA	NA	3	3
Endrin	Fillets	1992	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0
Endrin	Fillets	1993	0.04	NA	NA	0.00	0.00	0.04	NA	NA	0.00	0.00	10	NA	NA	9	10
Endrin	Fillets	1994	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3	3	3
Endrin	Fillets	1995	0.00	NA	NA	0.00	0.00	0.00	NA	NA	0.00	0.00	3	NA	NA	3	3
Endrin	Fillets	1996	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3	3	3
Endrin	Fillets	1997	0.00	NA	NA	0.00	0.00	0.00	NA	NA	0.00	0.00	3	NA	NA	3	3
Endrin	Fillets	1998	0.38	NA	NA	0.11	0.00	0.04	NA	NA	0.06	0.00	3	NA	NA	3	3
Endrin	Fillets	1999	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3	3	3
Endrin	Fillets	2000	0.00	NA	NA	0.00	0.00	0.00	NA	NA	0.00	0.00	3	NA	NA	3	3
Endrin	Fillets	2001	0.00	NA	NA	0.00	0.00	0.00	NA	NA	0.00	0.00	3	NA	NA	3	3
Endrin	Fillets	2002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3	3	3
Endrin	Fillets	2003	0.00	NA	NA	0.00	0.00	0.000	NA	NA	0.000	0.000	3	NA	NA	3	3
Hexachlorobenzene	Fillets	1992	0.74	0.43	0.52	0.55	0.38	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0
Hexachlorobenzene	Fillets	1993	0.98	NA	NA	0.71	0.65	0.17	NA	NA	0.05	0.10	10	NA	NA	9	10
Hexachlorobenzene	Fillets	1994	0.83	0.62	0.72	0.59	0.60	0.05	0.08	0.13	0.04	0.16	3	3	3	3	3
Hexachlorobenzene	Fillets	1995	0.71	NA	NA	0.52	0.55	0.04	NA	NA	0.04	0.01	3	NA	NA	3	3
Hexachlorobenzene	Fillets	1996	0.70	0.72	1.01	0.69	0.76	0.09	0.02	0.19	0.16	0.04	3	3	3	3	3
Hexachlorobenzene	Fillets	1997	0.68	NA	NA	0.63	0.32	0.03	NA	NA	0.10	0.16	3	NA	NA	3	3
Hexachlorobenzene	Fillets	1998	0.66	NA	NA	0.44	0.38	0.02	NA	NA	0.11	0.05	3	NA	NA	3	3
Hexachlorobenzene	Fillets	1999	0.49	0.43	0.55	0.60	0.53	0.01	0.22	0.02	0.02	0.05	3	3	3	3	3

Table C-11. Flounder Fillet Chemistry Data, 1991 – 2003.
(Continued)

Parameter	Tissue	Year	Means					SE					N				
			DIF	NB	BS	OS	ECCB	DIF	NB	BS	OS	ECCB	DIF	NB	BS	OS	ECCB
Hexachlorobenzene	Fillets	2000	0.60	NA	NA	0.49	0.41	0.06	NA	NA	0.02	0.08	3	NA	NA	3	3
Hexachlorobenzene	Fillets	2001	0.93	NA	NA	0.65	0.57	0.08	NA	NA	0.05	0.06	3	NA	NA	3	3
Hexachlorobenzene	Fillets	2002	0.45	0.34	0.46	0.46	0.33	0.05	0.05	0.02	0.08	0.05	3	3	3	3	3
Hexachlorobenzene	Fillets	2003	0.55	NA	NA	0.48	0.39	0.009	NA	NA	0.017	0.018	3	NA	NA	3	3
Mirex	Fillets	1992	0.59	0.30	0.44	0.40	0.17	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0
Mirex	Fillets	1993	0.50	NA	NA	0.49	0.24	0.08	NA	NA	0.10	0.05	10	NA	NA	9	10
Mirex	Fillets	1994	0.72	0.36	0.46	0.45	0.18	0.13	0.02	0.07	0.03	0.02	3	3	3	3	3
Mirex	Fillets	1995	0.36	NA	NA	0.28	0.16	0.05	NA	NA	0.03	0.08	3	NA	NA	3	3
Mirex	Fillets	1996	0.12	0.00	0.00	0.11	0.00	0.12	0.00	0.00	0.11	0.00	3	3	3	3	3
Mirex	Fillets	1997	0.00	NA	NA	0.00	0.00	0.00	NA	NA	0.00	0.00	3	NA	NA	3	3
Mirex	Fillets	1998	0.29	NA	NA	0.21	0.02	0.05	NA	NA	0.07	0.02	3	NA	NA	3	3
Mirex	Fillets	1999	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3	3	3
Mirex	Fillets	2000	0.34	NA	NA	0.28	0.15	0.07	NA	NA	0.02	0.01	3	NA	NA	3	3
Mirex	Fillets	2001	0.00	NA	NA	0.12	0.51	0.00	NA	NA	0.12	0.16	3	NA	NA	3	3
Mirex	Fillets	2002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3	3	3
Mirex	Fillets	2003	0.00	NA	NA	0.00	0.00	0.000	NA	NA	0.000	0.000	3	NA	NA	3	3
Lindane	Fillets	1992	0.09	0.00	0.00	0.10	0.08	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0
Lindane	Fillets	1993	0.09	NA	NA	0.00	0.00	0.07	NA	NA	0.00	0.00	10	NA	NA	9	10
Lindane	Fillets	1994	0.12	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	3	3	3	3	3
Lindane	Fillets	1995	0.00	NA	NA	0.00	0.00	0.00	NA	NA	0.00	0.00	3	NA	NA	3	3
Lindane	Fillets	1996	0.05	0.00	0.00	0.04	0.00	0.05	0.00	0.00	0.04	0.00	3	3	3	3	3
Lindane	Fillets	1997	0.00	NA	NA	0.11	0.23	0.00	NA	NA	0.06	0.16	3	NA	NA	3	3
Lindane	Fillets	1998	0.15	NA	NA	0.08	0.06	0.01	NA	NA	0.04	0.03	3	NA	NA	3	3
Lindane	Fillets	1999	0.00	0.04	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	3	3	3	3	3
Lindane	Fillets	2000	0.00	NA	NA	0.00	0.00	0.00	NA	NA	0.00	0.00	3	NA	NA	3	3
Lindane	Fillets	2001	0.00	NA	NA	0.00	0.00	0.00	NA	NA	0.00	0.00	3	NA	NA	3	3
Lindane	Fillets	2002	0.05	0.06	0.05	0.06	0.15	0.02	0.00	0.02	0.00	0.07	3	3	3	3	3
Lindane	Fillets	2003	0.09	NA	NA	0.08	0.07	0.014	NA	NA	0.005	0.005	3	NA	NA	3	3

Table C-12. Flounder Liver Chemistry Data, 1991 – 2003.

Parameter	Tissue	Year	Means					SE					N				
			DIF	NB	BS	OS	ECCB	DIF	NB	BS	OS	ECCB	DIF	NB	BS	OS	ECCB
Lead	Liver	1992	2.06	2.36	3.87	3.89	10.04	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0
Lead	Liver	1993	2.02	NA	NA	2.32	1.14	0.00	NA	NA	0.00	0.00	1	NA	NA	1	1
Lead	Liver	1994	1.42	1.65	6.52	6.22	4.15	0.26	0.19	1.52	1.04	0.87	3	3	3	3	3
Lead	Liver	1995	0.84	NA	NA	5.94	5.22	0.16	NA	NA	1.69	1.17	3	NA	NA	3	3
Lead	Liver	1996	2.12	2.12	3.84	4.24	2.58	0.19	0.31	1.01	0.87	1.57	3	3	3	3	3
Lead	Liver	1997	3.06	NA	NA	4.39	1.07	0.64	NA	NA	0.64	0.31	3	NA	NA	3	3
Lead	Liver	1998	2.47	NA	NA	3.82	2.28	0.20	NA	NA	0.37	0.50	3	NA	NA	3	3
Lead	Liver	1999	2.42	4.43	4.95	6.77	2.04	0.32	1.69	1.54	3.25	0.39	3	3	3	3	3
Lead	Liver	2000	3.65	NA	NA	8.14	1.65	0.57	NA	NA	0.35	0.13	3	NA	NA	3	3
Lead	Liver	2001	2.95	NA	NA	7.41	3.13	0.42	NA	NA	0.42	0.41	3	NA	NA	3	3
Lead	Liver	2002	2.00	2.89	2.79	4.96	1.65	0.40	0.70	0.46	0.47	0.60	3	3	3	3	3
Lead	Liver	2003	2.95	NA	NA	5.08	3.89	0.252	NA	NA	1.238	1.187	3	NA	NA	3	3
Mercury	Liver	1992	0.773	0.794	1.148	0.497	0.507	0.000	0.000	0.000	0.000	0.000	0	0	0	0	0
Mercury	Liver	1993	0.694	NA	NA	0.420	0.232	0.000	NA	NA	0.000	0.000	1	NA	NA	1	1
Mercury	Liver	1994	0.277	0.309	0.453	0.545	0.226	0.033	0.027	0.079	0.162	0.021	3	3	3	3	3
Mercury	Liver	1995	0.250	NA	NA	0.386	0.301	0.049	NA	NA	0.020	0.051	3	NA	NA	3	3
Mercury	Liver	1996	0.530	0.751	0.730	0.552	0.436	0.086	0.012	0.229	0.030	0.042	3	3	3	3	3
Mercury	Liver	1997	0.343	NA	NA	0.343	0.202	0.054	NA	NA	0.069	0.021	3	NA	NA	3	3
Mercury	Liver	1998	0.271	NA	NA	0.386	0.266	0.035	NA	NA	0.037	0.039	3	NA	NA	3	3
Mercury	Liver	1999	0.223	0.743	0.494	0.645	0.308	0.003	0.068	0.015	0.119	0.043	3	3	3	3	3
Mercury	Liver	2000	0.426	NA	NA	0.631	0.321	0.093	NA	NA	0.279	0.038	3	NA	NA	3	3
Mercury	Liver	2001	0.353	NA	NA	0.475	0.175	0.035	NA	NA	0.065	0.045	3	NA	NA	3	3
Mercury	Liver	2002	0.297	0.330	0.364	0.398	0.216	0.030	0.049	0.017	0.020	0.009	3	3	3	3	3
Mercury	Liver	2003	0.43	NA	NA	0.65	0.33	0.041	NA	NA	0.028	0.042	3	NA	NA	3	3
Cadmium	Liver	1992	3.04	1.43	2.02	2.39	1.02	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0
Cadmium	Liver	1993	0.91	NA	NA	0.85	0.42	0.00	NA	NA	0.00	0.00	1	NA	NA	1	1
Cadmium	Liver	1994	0.98	0.83	1.09	2.16	0.97	0.44	0.11	0.18	0.89	0.21	3	3	3	3	3
Cadmium	Liver	1995	0.44	NA	NA	1.42	0.66	0.07	NA	NA	0.09	0.01	3	NA	NA	3	3
Cadmium	Liver	1996	0.90	1.65	1.15	3.33	1.09	0.30	0.36	0.20	0.79	0.20	3	3	3	3	3
Cadmium	Liver	1997	2.25	NA	NA	1.04	1.83	1.50	NA	NA	0.10	0.49	3	NA	NA	3	3
Cadmium	Liver	1998	0.66	NA	NA	1.22	1.65	0.10	NA	NA	0.29	0.51	3	NA	NA	3	3

Table C-12. Flounder Liver Chemistry Data, 1991 – 2003. (Continued)

Parameter	Tissue	Year	Means					SE					N				
			DIF	NB	BS	OS	ECCB	DIF	NB	BS	OS	ECCB	DIF	NB	BS	OS	ECCB
Cadmium	Liver	1999	0.59	2.21	1.47	3.18	1.64	0.13	0.90	0.13	1.05	0.47	3	3	3	3	3
Cadmium	Liver	2000	1.65	NA	NA	2.68	1.25	0.63	NA	NA	0.72	0.35	3	NA	NA	3	3
Cadmium	Liver	2001	1.53	NA	NA	3.81	1.57	0.45	NA	NA	1.80	0.40	3	NA	NA	3	3
Cadmium	Liver	2002	1.99	1.25	1.58	2.21	1.71	0.64	0.23	0.39	0.46	0.64	3	3	3	3	3
Cadmium	Liver	2003	1.43	NA	NA	2.72	5.25	0.094	NA	NA	0.532	3.031	3	NA	NA	3	3
Copper	Liver	1992	35.39	56.29	46.40	94.05	113.65	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0
Copper	Liver	1993	82.70	NA	NA	50.60	26.40	0.00	NA	NA	0.00	0.00	1	NA	NA	1	1
Copper	Liver	1994	51.81	80.47	103.03	112.20	121.30	6.84	10.72	19.49	29.95	5.67	3	3	3	3	3
Copper	Liver	1995	55.86	NA	NA	121.40	64.52	22.31	NA	NA	12.89	4.16	3	NA	NA	3	3
Copper	Liver	1996	42.28	74.78	68.31	125.51	65.55	19.58	4.45	13.34	34.36	7.73	3	3	3	3	3
Copper	Liver	1997	54.92	NA	NA	75.07	87.01	1.71	NA	NA	11.75	17.91	3	NA	NA	3	3
Copper	Liver	1998	42.55	NA	NA	91.60	138.85	9.30	NA	NA	19.57	29.87	3	NA	NA	3	3
Copper	Liver	1999	33.51	90.58	67.98	129.94	70.88	2.77	28.06	12.79	18.52	16.26	3	3	3	3	3
Copper	Liver	2000	117.67	NA	NA	181.00	100.50	1.45	NA	NA	44.00	29.48	3	NA	NA	3	3
Copper	Liver	2001	51.80	NA	NA	102.80	81.53	7.15	NA	NA	30.79	28.64	3	NA	NA	3	3
Copper	Liver	2002	61.10	55.10	74.90	80.70	43.63	11.77	5.66	10.28	7.17	16.29	3	3	3	3	3
Copper	Liver	2003	44.40	NA	NA	135.67	67.73	8.151	NA	NA	9.387	14.389	3	NA	NA	3	3
Nickel	Liver	1992	0.49	0.47	0.73	0.94	0.45	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0
Nickel	Liver	1993	0.62	NA	NA	0.65	0.40	0.00	NA	NA	0.00	0.00	1	NA	NA	1	1
Nickel	Liver	1994	0.24	0.27	0.61	0.60	0.37	0.01	0.03	0.09	0.04	0.05	3	3	3	3	3
Nickel	Liver	1995	0.14	NA	NA	0.44	0.46	0.02	NA	NA	0.11	0.05	3	NA	NA	3	3
Nickel	Liver	1996	0.00	0.11	0.00	0.17	0.00	0.00	0.11	0.00	0.10	0.00	3	3	3	3	3
Nickel	Liver	1997	0.41	NA	NA	0.38	0.42	0.12	NA	NA	0.03	0.07	3	NA	NA	3	3
Nickel	Liver	1998	0.58	NA	NA	0.64	0.66	0.29	NA	NA	0.07	0.15	3	NA	NA	3	3
Nickel	Liver	1999	0.17	0.78	0.99	0.58	0.38	0.05	0.32	0.34	0.14	0.12	3	3	3	3	3
Nickel	Liver	2000	0.61	NA	NA	0.63	0.49	0.08	NA	NA	0.04	0.08	3	NA	NA	3	3
Nickel	Liver	2001	0.51	NA	NA	0.77	0.32	0.06	NA	NA	0.05	0.03	3	NA	NA	3	3
Nickel	Liver	2002	0.43	0.42	0.43	1.00	0.69	0.05	0.04	0.02	0.32	0.09	3	3	3	3	3
Nickel	Liver	2003	0.82	NA	NA	0.67	0.75	0.155	NA	NA	0.028	0.066	3	NA	NA	3	3
Silver	Liver	1992	1.60	2.50	2.71	5.66	4.92	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0

Table C-12. Flounder Liver Chemistry Data, 1991 – 2003. (Continued)

Parameter	Tissue	Year	Means					SE					N				
			DIF	NB	BS	OS	ECCB	DIF	NB	BS	OS	ECCB	DIF	NB	BS	OS	ECCB
Silver	Liver	1993	5.46	NA	NA	4.78	1.41	0.00	NA	NA	0.00	0.00	1	NA	NA	1	1
Silver	Liver	1994	3.76	5.67	7.77	10.11	6.11	0.32	1.48	1.18	4.11	0.81	3	3	3	3	3
Silver	Liver	1995	3.42	NA	NA	9.89	4.55	1.88			2.60	0.39	3	NA	NA	3	3
Silver	Liver	1996	4.47	7.21	6.28	22.40	4.16	1.53	0.52	1.48	6.42	0.22	3	3	3	3	3
Silver	Liver	1997	5.47	NA	NA	9.17	8.02	0.10	NA	NA	1.36	1.22	3	NA	NA	3	3
Silver	Liver	1998	2.55	NA	NA	7.02	6.90	0.78	NA	NA	1.33	1.93	3	NA	NA	3	3
Silver	Liver	1999	2.37	14.18	5.71	11.57	4.53	0.20	7.54	0.96	1.88	0.53	3	3	3	3	3
Silver	Liver	2000	6.44	NA	NA	14.99	6.39	0.26	NA	NA	5.26	1.08	3	NA	NA	3	3
Silver	Liver	2001	3.67	NA	NA	9.60	5.57	0.90	NA	NA	3.01	2.13	3	NA	NA	3	3
Silver	Liver	2002	4.39	4.84	5.22	7.34	3.49	1.33	0.80	1.23	0.57	1.41	3	3	3	3	3
Silver	Liver	2003	1.86	NA	NA	16.07	6.16	0.329	NA	NA	2.728	2.416	3	NA	NA	3	3
Zinc	Liver	1992	118.50	152.00	133.25	158.30	161.70	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0
Zinc	Liver	1993	86.70	NA	NA	85.30	82.30	0.00	NA	NA	0.00	0.00	1	NA	NA	1	1
Zinc	Liver	1994	112.27	143.33	138.00	154.00	176.67	0.37	4.10	2.65	9.02	15.59	3	3	3	3	3
Zinc	Liver	1995	105.68	NA	NA	151.65	138.12	1.38	NA	NA	6.49	11.65	3	NA	NA	3	3
Zinc	Liver	1996	87.07	120.15	124.26	120.99	126.28	24.87	0.46	8.61	5.77	2.45	3	3	3	3	3
Zinc	Liver	1997	127.46	NA	NA	141.24	137.22	2.55	NA	NA	6.67	7.10	3	NA	NA	3	3
Zinc	Liver	1998	106.26	NA	NA	113.63	147.75	1.59	NA	NA	10.19	6.29	3	NA	NA	3	3
Zinc	Liver	1999	101.54	122.87	106.87	108.54	112.21	4.63	4.41	5.84	7.42	4.36	3	3	3	3	3
Zinc	Liver	2000	127.67	NA	NA	139.33	136.67	8.01	NA	NA	3.38	1.86	3	NA	NA	3	3
Zinc	Liver	2001	104.00	NA	NA	120.67	128.67	1.53	NA	NA	9.40	3.28	3	NA	NA	3	3
Zinc	Liver	2002	103.30	116.00	111.00	109.33	131.67	5.27	5.03	3.00	2.91	4.98	3	3	3	3	3
Zinc	Liver	2003	98.07	NA	NA	116.67	120.67	2.149	NA	NA	6.960	3.180	3	NA	NA	3	3
Total DDT	Liver	1992	194.71	114.49	330.07	154.56	55.79	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0
Total DDT	Liver	1993	257.91	NA	NA	247.30	69.41	0.00	NA	NA	0.00	0.00	1	NA	NA	1	1
Total DDT	Liver	1994	407.31	168.69	297.61	264.11	73.53	40.82	15.02	82.90	47.22	9.79	3	3	3	3	3
Total DDT	Liver	1995	866.33	NA	NA	455.23	160.30	76.78	NA	NA	100.00	17.05	3	NA	NA	3	3
Total DDT	Liver	1996	420.00	192.67	176.23	274.33	104.00	88.49	29.69	45.70	93.20	11.02	3	3	3	3	3
Total DDT	Liver	1997	635.20	NA	NA	342.40	237.37	130.23	NA	NA	56.21	84.22	3	NA	NA	3	3
Total DDT	Liver	1998	381.80	NA	NA	132.43	64.66	99.23	NA	NA	17.18	22.04	3	NA	NA	3	3

Table C-12. Flounder Liver Chemistry Data, 1991 – 2003. (Continued)

Parameter	Tissue	Year	Means					SE					N				
			DIF	NB	BS	OS	ECCB	DIF	NB	BS	OS	ECCB	DIF	NB	BS	OS	ECCB
Total DDT	Liver	1999	484.47	116.34	187.00	181.02	80.56	24.62	15.59	32.21	44.79	26.59	3	3	3	3	3
Total DDT	Liver	2000	145.93	NA	NA	94.11	42.44	25.00	NA	NA	7.53	1.61	3	NA	NA	3	3
Total DDT	Liver	2001	232.29	NA	NA	175.27	62.44	22.79	NA	NA	18.21	3.79	3	NA	NA	3	3
Total DDT	Liver	2002	237.43	135.03	122.54	142.72	82.46	42.44	32.05	16.29	9.90	15.37	3	3	3	3	3
Total DDT	Liver	2003	309.26	NA	NA	160.04	59.48	33.287	NA	NA	19.453	18.610	3	NA	NA	3	3
Total PCB	Liver	1992	2624.96	1137.18	2812.54	1762.19	468.91	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0
Total PCB	Liver	1993	1796.95	NA	NA	1732.91	336.46	0.00	NA	NA	0.00	0.00	1	NA	NA	1	1
Total PCB	Liver	1994	3614.88	1115.69	2167.67	2381.50	343.67	595.95	135.12	823.07	561.77	52.94	3	3	3	3	3
Total PCB	Liver	1995	9242.98	NA	NA	6090.63	1249.36	839.25	NA	NA	1747.82	520.59	3	NA	NA	3	3
Total PCB	Liver	1996	3672.27	2123.10	1690.03	2600.57	778.10	687.72	78.39	440.70	463.19	33.60	3	3	3	3	3
Total PCB	Liver	1997	4637.97	NA	NA	2629.27	938.43	992.24	NA	NA	727.44	177.43	3	NA	NA	3	3
Total PCB	Liver	1998	3060.53	NA	NA	1256.03	448.36	659.52	NA	NA	246.76	128.00	3	NA	NA	3	3
Total PCB	Liver	1999	2761.07	825.35	1213.75	1270.92	360.31	32.38	98.35	103.22	326.53	111.33	3	3	3	3	3
Total PCB	Liver	2000	1856.14	NA	NA	1140.65	249.87	347.83	NA	NA	55.42	14.50	3	NA	NA	3	3
Total PCB	Liver	2001	3611.60	NA	NA	2512.71	424.33	302.14	NA	NA	68.98	27.54	3	NA	NA	3	3
Total PCB	Liver	2002	3059.02	1661.08	1558.78	2186.42	515.88	644.82	373.71	111.83	253.48	94.87	3	3	3	3	3
Total PCB	Liver	2003	4462.45	NA	NA	2558.90	371.87	594.196	NA	NA	285.886	79.030	3	NA	NA	3	3
Total PAH	Liver	1992	q	NA	NA	q	q	q	NA	NA	q	q	q	NA	NA	q	Q
Total PAH	Liver	1993	q	NA	NA	q	q	q	NA	NA	q	q	q	NA	NA	q	Q
Total PAH	Liver	1994	217.68	232.37	198.05	243.83	148.17	27.81	83.26	108.99	72.81	39.85	3	3	3	3	3
Total PAH	Liver	1995	240.23	NA	NA	61.53	60.30	40.11	NA	NA	11.62	4.27	3	NA	NA	3	3
Total PAH	Liver	1996	268.63	334.97	304.73	339.23	284.70	37.22	15.40	41.13	81.93	38.27	3	3	3	3	3
Total PAH	Liver	1997	233.03	NA	NA	140.80	103.89	20.09	NA	NA	3.29	12.26	3	NA	NA	3	3
Total PAH	Liver	1998	76.31	NA	NA	49.42	34.29	13.20	NA	NA	9.08	8.59	3	NA	NA	3	3
Total PAH	Liver	1999	104.65	97.54	85.19	88.59	126.72	12.60	28.23	24.31	23.58	58.68	3	3	3	3	3
Total PAH	Liver	2000	104.68	NA	NA	131.99	69.35	5.80	NA	NA	53.35	19.45	3	NA	NA	3	3
Total PAH	Liver	2001	141.16	NA	NA	99.38	60.83	5.24	NA	NA	5.40	7.61	3	NA	NA	3	3
Total PAH	Liver	2002	58.16	49.37	51.22	40.96	99.74	5.53	4.49	2.72	4.35	33.09	3	3	3	3	3
Total PAH	Liver	2003	54.16	NA	NA	21.28	34.42	4.268	NA	NA	10.315	8.982	3	NA	NA	3	3
Total Chlordane	Liver	1992	201.92	55.01	153.19	80.20	14.15	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0

Table C-12. Flounder Liver Chemistry Data, 1991 – 2003. (Continued)

Parameter	Tissue	Year	Means					SE					N				
			DIF	NB	BS	OS	ECCB	DIF	NB	BS	OS	ECCB	DIF	NB	BS	OS	ECCB
Total Chlordane	Liver	1993	122.68	NA	NA	92.20	26.33	0.00	NA	NA	0.00	0.00	1	NA	NA	1	1
Total Chlordane	Liver	1994	207.94	58.94	122.64	112.99	19.39	22.57	13.41	59.70	34.53	2.83	3	3	3	3	3
Total Chlordane	Liver	1995	283.00	NA	NA	96.00	39.73	42.88	NA	NA	16.29	16.74	3	NA	NA	3	3
Total Chlordane	Liver	1996	169.87	69.33	59.90	86.33	20.23	36.87	8.41	18.86	10.99	3.40	3	3	3	3	3
Total Chlordane	Liver	1997	243.67	NA	NA	78.67	32.70	54.73	NA	NA	15.94	4.64	3	NA	NA	3	3
Total Chlordane	Liver	1998	176.10	NA	NA	51.33	11.87	54.99	NA	NA	6.82	3.39	3	NA	NA	3	3
Total Chlordane	Liver	1999	225.85	41.68	68.38	47.80	15.42	10.52	10.86	36.54	15.29	6.15	3	3	3	3	3
Total Chlordane	Liver	2000	95.72	NA	NA	30.35	12.39	25.61	NA	NA	3.57	1.33	3	NA	NA	3	3
Total Chlordane	Liver	2001	91.87	NA	NA	41.35	13.51	6.12	NA	NA	5.42	1.23	3	NA	NA	3	3
Total Chlordane	Liver	2002	77.17	34.70	34.99	34.48	15.43	14.47	13.11	2.58	1.14	1.82	3	3	3	3	3
Total Chlordane	Liver	2003	84.81	NA	NA	29.68	10.43	2.566	NA	NA	3.227	2.522	3	NA	NA	3	3
Chromium	Liver	1992	0.34	0.07	0.10	0.07	0.05	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0
Chromium	Liver	1993	0.74	NA	NA	0.92	0.00	0.00	NA	NA	0.00	0.00	1	NA	NA	1	1
Chromium	Liver	1994	0.19	0.10	0.17	0.14	0.10	0.05	0.04	0.03	0.00	0.01	3	3	3	3	3
Chromium	Liver	1995	0.14	NA	NA	0.09	0.09	0.01	NA	NA	0.02	0.02	3	NA	NA	3	3
Chromium	Liver	1996	0.08	0.16	0.05	0.12	0.04	0.00	0.03	0.01	0.03	0.01	3	3	3	3	3
Chromium	Liver	1997	0.42	NA	NA	0.30	0.33	0.23	NA	NA	0.29	0.32	3	NA	NA	3	3
Chromium	Liver	1998	0.36	NA	NA	0.19	0.08	0.14	NA	NA	0.04	0.01	3	NA	NA	3	3
Chromium	Liver	1999	0.26	0.54	0.57	0.16	0.14	0.15	0.22	0.09	0.03	0.00	3	3	3	3	3
Chromium	Liver	2000	0.13	NA	NA	0.13	0.12	0.01	NA	NA	0.02	0.01	3	NA	NA	3	3
Chromium	Liver	2001	0.21	NA	NA	0.24	0.13	0.04	NA	NA	0.09	0.01	3	NA	NA	3	3
Chromium	Liver	2002	0.34	0.36	0.34	0.35	0.42	0.02	0.01	0.06	0.04	0.01	3	3	3	3	3
Chromium	Liver	2003	0.16	NA	NA	0.13	0.24	0.025	NA	NA	0.025	0.119	3	NA	NA	3	3
Aldrin	Liver	1992	0.00	1.90	3.43	2.01	1.46	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0
Aldrin	Liver	1993	0.00	NA	NA	0.00	0.00	0.00	NA	NA	0.00	0.00	1	NA	NA	1	1
Aldrin	Liver	1994	8.24	10.18	18.59	11.20	13.01	1.67	1.23	7.39	1.94	3.65	3	3	3	3	3
Aldrin	Liver	1995	0.00	NA	NA	0.00	0.00	0.00	NA	NA	0.00	0.00	3	NA	NA	3	3
Aldrin	Liver	1996	0.40	0.00	0.00	0.00	0.00	0.40	0.00	0.00	0.00	0.00	3	3	3	3	3
Aldrin	Liver	1997	0.00	NA	NA	0.00	0.00	0.00	NA	NA	0.00	0.00	3	NA	NA	3	3
Aldrin	Liver	1998	0.00	NA	NA	0.00	0.00	0.00	NA	NA	0.00	0.00	3	NA	NA	3	3

Table C-12. Flounder Liver Chemistry Data, 1991 – 2003. (Continued)

Parameter	Tissue	Year	Means					SE					N				
			DIF	NB	BS	OS	ECCB	DIF	NB	BS	OS	ECCB	DIF	NB	BS	OS	ECCB
Aldrin	Liver	1999	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3	3	3
Aldrin	Liver	2000	0.00	NA	NA	0.00	0.00	0.00	NA	NA	0.00	0.00	3	NA	NA	3	3
Aldrin	Liver	2001	0.00	NA	NA	0.00	0.00	0.00	NA	NA	0.00	0.00	3	NA	NA	3	3
Aldrin	Liver	2002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3	3	3
Aldrin	Liver	2003	0.00			0.00	0.00	0.000			0.000	0.000	3			3	3
Dieldrin	Liver	1992	21.46	10.41	14.06	10.83	9.51	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0
Dieldrin	Liver	1993	23.37	NA	NA	20.25	11.20	0.00	NA	NA	0.00	0.00	1	NA	NA	1	1
Dieldrin	Liver	1994	30.27	9.26	13.46	13.82	5.64	4.73	0.41	4.99	3.11	1.48	3	3	3	3	3
Dieldrin	Liver	1995	52.67	NA	NA	0.00	7.00	4.48	NA	NA	0.00	7.00	3	NA	NA	3	3
Dieldrin	Liver	1996	30.00	9.00	0.00	8.33	9.80	13.58	4.51	0.00	4.41	1.72	3	3	3	3	3
Dieldrin	Liver	1997	36.67	NA	NA	18.33	14.33	7.22	NA	NA	3.33	1.45	3	NA	NA	3	3
Dieldrin	Liver	1998	24.12	NA	NA	9.92	4.89	3.50	NA	NA	0.67	1.58	3	NA	NA	3	3
Dieldrin	Liver	1999	38.87	10.71	25.36	18.49	6.76	14.84	1.78	6.20	4.38	3.36	3	3	3	3	3
Dieldrin	Liver	2000	12.82	NA	NA	4.37	3.99	3.27	NA	NA	0.77	0.22	3	NA	NA	3	3
Dieldrin	Liver	2001	19.96	NA	NA	14.98	6.45	1.40	NA	NA	3.06	0.34	3	NA	NA	3	3
Dieldrin	Liver	2002	7.94	3.69	4.15	4.24	5.44	1.34	0.97	0.29	0.35	0.95	3	3	3	3	3
Dieldrin	Liver	2003	11.58	NA	NA	5.59	6.43	1.615	NA	NA	0.278	2.528	3	NA	NA	3	3
Endrin	Liver	1992	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0
Endrin	Liver	1993	0.00	NA	NA	0.00	0.00	0.00	NA	NA	0.00	0.00	1	NA	NA	1	1
Endrin	Liver	1994	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3	3	3
Endrin	Liver	1995	0.00	NA	NA	0.00	0.00	0.00	NA	NA	0.00	0.00	3	NA	NA	3	3
Endrin	Liver	1996	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3	3	3
Endrin	Liver	1997	0.00	NA	NA	0.00	0.00	0.00	NA	NA	0.00	0.00	3	NA	NA	3	3
Endrin	Liver	1998	5.51	NA	NA	1.75	0.00	0.86	NA	NA	0.14	0.00	3	NA	NA	3	3
Endrin	Liver	1999	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3	3	3
Endrin	Liver	2000	0.00	NA	NA	0.00	0.00	0.00	NA	NA	0.00	0.00	3	NA	NA	3	3
Endrin	Liver	2001	0.00	NA	NA	0.00	0.00	0.00	NA	NA	0.00	0.00	3	NA	NA	3	3
Endrin	Liver	2002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3	3	3
Endrin	Liver	2003	0.00	NA	NA	0.00	0.00	0.000	NA	NA	0.000	0.000	3	NA	NA	3	3
Hexachlorobenzene	Liver	1992	5.49	2.72	6.22	4.22	2.51	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0

Table C-12. Flounder Liver Chemistry Data, 1991 – 2003. (Continued)

Parameter	Tissue	Year	Means					SE					N				
			DIF	NB	BS	OS	ECCB	DIF	NB	BS	OS	ECCB	DIF	NB	BS	OS	ECCB
Hexachlorobenzene	Liver	1993	6.60	NA	NA	4.70	4.78	0.00	NA	NA	0.00	0.00	1	NA	NA	1	1
Hexachlorobenzene	Liver	1994	9.02	6.22	9.14	7.03	5.26	1.05	0.52	2.53	0.77	0.63	3	3	3	3	3
Hexachlorobenzene	Liver	1995	6.70	NA	NA	3.63	2.27	0.44	NA	NA	1.86	2.27	3	NA	NA	3	3
Hexachlorobenzene	Liver	1996	5.93	0.00	0.00	3.13	0.00	3.20	0.00	0.00	3.13	0.00	3	3	3	3	3
Hexachlorobenzene	Liver	1997	7.47	NA	NA	6.27	5.20	0.64	NA	NA	1.17	0.35	3	NA	NA	3	3
Hexachlorobenzene	Liver	1998	6.53	NA	NA	4.69	3.73	0.69	NA	NA	0.78	1.63	3	NA	NA	3	3
Hexachlorobenzene	Liver	1999	6.53	2.97	4.43	3.84	3.49	0.25	0.24	0.55	0.27	1.20	3	3	3	3	3
Hexachlorobenzene	Liver	2000	4.48	NA	NA	3.50	2.58	0.53	NA	NA	0.24	0.58	3	NA	NA	3	3
Hexachlorobenzene	Liver	2001	5.06	NA	NA	5.36	3.55	0.24	NA	NA	0.17	0.37	3	NA	NA	3	3
Hexachlorobenzene	Liver	2002	3.69	3.09	3.61	4.05	2.68	0.31	0.64	0.54	0.44	0.25	3	3	3	3	3
Hexachlorobenzene	Liver	2003	4.31	NA	NA	3.81	2.21	0.629	NA	NA	0.403	0.083	3	NA	NA	3	3
Mirex	Liver	1992	0.57	3.19	5.09	1.45	1.04	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0
Mirex	Liver	1993	2.98	NA	NA	4.25	1.47	0.00	NA	NA	0.00	0.00	1	NA	NA	1	1
Mirex	Liver	1994	5.87	3.31	5.18	4.44	0.00	1.65	0.74	1.37	0.95	0.00	3	3	3	3	3
Mirex	Liver	1995	4.90	NA	NA	3.80	1.39	0.29	NA	NA	0.35	0.89	3	NA	NA	3	3
Mirex	Liver	1996	1.80	0.00	0.00	0.00	0.00	1.80	0.00	0.00	0.00	0.00	3	3	3	3	3
Mirex	Liver	1997	11.77	NA	NA	6.77	3.40	2.62	NA	NA	0.15	0.21	3	NA	NA	3	3
Mirex	Liver	1998	3.49	NA	NA	2.87	0.46	0.60	NA	NA	1.52	0.23	3	NA	NA	3	3
Mirex	Liver	1999	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3	3	3
Mirex	Liver	2000	2.87	NA	NA	2.33	0.98	0.61	NA	NA	0.02	0.11	3	NA	NA	3	3
Mirex	Liver	2001	4.07	NA	NA	3.96	1.43	0.18	NA	NA	0.21	0.12	3	NA	NA	3	3
Mirex	Liver	2002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3	3	3
Mirex	Liver	2003	0.00	NA	NA	0.00	0.00	0.000	NA	NA	0.000	0.000	3	NA	NA	3	3
Lindane	Liver	1992	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0
Lindane	Liver	1993	0.00	NA	NA	0.00	0.00	0.00	NA	NA	0.00	0.00	1	NA	NA	1	1
Lindane	Liver	1994	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3	3	3
Lindane	Liver	1995	1.40	NA	NA	0.97	0.00	0.15	NA	NA	0.49	0.00	3	NA	NA	3	3
Lindane	Liver	1996	0.87	0.00	0.00	0.00	0.00	0.87	0.00	0.00	0.00	0.00	3	3	3	3	3
Lindane	Liver	1997	0.00	NA	NA	0.00	0.00	0.00	NA	NA	0.00	0.00	3	NA	NA	3	3
Lindane	Liver	1998	0.67	NA	NA	0.00	0.13	0.09	NA	NA	0.00	0.07	3	NA	NA	3	3

Table C-12. Flounder Liver Chemistry Data, 1991 – 2003.
(Continued)

Parameter	Tissue	Year	Means					SE					N				
			DIF	NB	BS	OS	ECCB	DIF	NB	BS	OS	ECCB	DIF	NB	BS	OS	ECCB
Lindane	Liver	1999	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3	3	3
Lindane	Liver	2000	0.00	NA	NA	0.00	0.00	0.00	NA	NA	0.00	0.00	3	NA	NA	3	3
Lindane	Liver	2001	0.00	NA	NA	0.00	0.00	0.00	NA	NA	0.00	0.00	3	NA	NA	3	3
Lindane	Liver	2002	0.50	0.51	0.42	0.40	0.64	0.01	0.04	0.09	0.08	0.13	3	3	3	3	3
Lindane	Liver	2003	0.37	NA	NA	0.26	0.25	0.037	NA	NA	0.042	0.037	3	NA	NA	3	3

Table C-13. Lobster Meat Chemistry Data, 1992 – 2003.

			Means			SE			N		
Parameter	**Tissue**	**Year**	**DIF**	**OS**	**ECCB**	**DIF**	**OS**	**ECCB**	**DIF**	**OS**	**ECCB**
Mercury	Meat	1992	1.228	0.854	0.921	0.304	0.164	0.274	3	3	3
Mercury	Meat	1993	0.842	1.013	0.659	0.011	0.308	0.057	3	2	10
Mercury	Meat	1994	0.827	1.043	0.498	0.067	0.313	0.055	3	2	3
Mercury	Meat	1995	0.610	1.089	0.535	0.297	0.260	0.055	3	3	3
Mercury	Meat	1996	0.858	1.067	0.939	0.071	0.216	0.102	3	3	3
Mercury	Meat	1997	1.467	1.120	0.983	0.111	0.083	0.072	3	3	3
Mercury	Meat	1998	0.767	0.990	0.598	0.029	0.064	0.047	3	3	3
Mercury	Meat	1999	0.999	1.038	0.712	0.153	0.165	0.070	3	3	3
Mercury	Meat	2000	0.746	0.922	0.659	0.116	0.099	0.135	3	3	3
Mercury	Meat	2001	0.873	1.024	0.530	0.039	0.117	0.050	3	3	3
Mercury	Meat	2002	0.853	0.790	0.642	0.106	0.032	0.055	3	3	3
Mercury	Meat	2003	1.08853	0.8484	0.52777	0.0503	0.1255	0.0493	3	3	3
Total DDT	Meat	1992	14.00	8.98	17.83	1.27	1.17	6.73	3	3	3
Total DDT	Meat	1993	27.29	8.67	9.57	10.37	1.63	1.24	3	2	10
Total DDT	Meat	1994	23.83	21.93	10.30	1.79	4.36	1.38	3	2	3
Total DDT	Meat	1995	13.62	14.34	13.22	2.36	0.79	2.55	3	3	3
Total DDT	Meat	1996	25.98	18.53	13.01	3.90	2.81	1.21	3	3	3
Total DDT	Meat	1997	46.34	20.90	14.61	23.02	6.43	1.01	3	3	3
Total DDT	Meat	1998	11.37	8.91	9.69	0.62	1.42	1.39	3	3	3
Total DDT	Meat	1999	15.98	7.36	9.32	1.06	0.10	0.83	3	3	3
Total DDT	Meat	2000	5.08	4.80	3.99	0.73	0.65	0.83	3	3	3
Total DDT	Meat	2001	7.56	6.94	6.40	1.41	0.66	0.30	3	3	3
Total DDT	Meat	2002	8.63	5.50	4.51	0.47	1.02	0.53	3	3	3
Total DDT	Meat	2003	12.85	5.62	5.73333	0.19519	0.7439	1.179	3	3	3
Total PCB	Meat	1992	99.61	60.60	87.27	8.72	11.86	32.85	3	3	3
Total PCB	Meat	1993	150.56	62.36	62.66	58.57	3.48	15.49	3	2	10
Total PCB	Meat	1994	137.15	177.93	66.80	13.44	66.57	15.81	3	2	3
Total PCB	Meat	1995	122.31	118.76	76.08	22.28	9.56	12.45	3	3	3
Total PCB	Meat	1996	220.41	148.09	68.88	27.17	2.00	5.82	3	3	3
Total PCB	Meat	1997	311.83	157.62	77.55	141.59	21.88	1.47	3	3	3
Total PCB	Meat	1998	112.96	71.83	54.90	10.94	11.01	5.35	3	3	3
Total PCB	Meat	1999	154.22	73.73	52.91	12.97	3.18	4.50	3	3	3
Total PCB	Meat	2000	127.41	64.00	37.98	69.13	6.47	4.82	3	3	3
Total PCB	Meat	2001	74.26	65.51	39.90	16.98	6.86	2.50	3	3	3
Total PCB	Meat	2002	90.55	59.92	32.81	1.48	11.17	5.71	3	3	3
Total PCB	Meat	2003	148.67	232.56	35.8	6.44156	170.87	2.135	3	3	3
Total Chlordane	Meat	1992	3.73	1.49	1.57	0.40	0.16	0.05	3	3	3
Total Chlordane	Meat	1993	6.07	1.54	1.82	1.15	0.07	0.60	3	2	10
Total Chlordane	Meat	1994	5.19	5.13	1.36	0.67	1.55	0.19	3	2	3
Total Chlordane	Meat	1995	0.39	0.59	0.06	0.20	0.21	0.05	3	3	3
Total Chlordane	Meat	1996	5.63	3.80	1.52	0.70	0.32	0.06	3	3	3
Total Chlordane	Meat	1997	6.41	3.59	1.83	1.32	1.07	0.29	3	3	3
Total Chlordane	Meat	1998	4.16	2.95	1.68	0.47	0.70	0.04	3	3	3
Total Chlordane	Meat	1999	5.47	2.30	1.49	0.09	0.23	0.04	3	3	3
Total Chlordane	Meat	2000	2.48	1.41	0.94	0.26	0.12	0.11	3	3	3
Total Chlordane	Meat	2001	2.13	1.14	0.43	0.66	0.13	0.06	3	3	3

Table C-13. Lobster Meat Chemistry Data, 1992 – 2003.
(Continued)

			Means			SE			N		
Parameter	**Tissue**	**Year**	**DIF**	**OS**	**ECCB**	**DIF**	**OS**	**ECCB**	**DIF**	**OS**	**ECCB**
Total Chlordane	Meat	2002	1.33	0.92	0.57	0.11	0.13	0.08	3	3	3
Total Chlordane	Meat	2003	2.25667	1.17667	0.98333	0.07688	0.1041	0.07688	3	3	3
Aldrin	Meat	1992	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3
Aldrin	Meat	1993	0.00	0.00	0.24	0.00	0.00	0.24	3	2	10
Aldrin	Meat	1994	0.65	0.42	0.50	0.21	0.02	0.02	3	2	3
Aldrin	Meat	1995	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3
Aldrin	Meat	1996	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3
Aldrin	Meat	1997	0.00	0.00	0.61	0.00	0.00	0.50	3	3	3
Aldrin	Meat	1998	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3
Aldrin	Meat	1999	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3
Aldrin	Meat	2000	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3
Aldrin	Meat	2001	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3
Aldrin	Meat	2002	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3
Aldrin	Meat	2003	0	0	0	0	0	0	3	3	3
Dieldrin	Meat	1992	5.51	3.95	3.52	0.33	0.21	0.45	3	3	3
Dieldrin	Meat	1993	9.02	4.66	3.52	1.08	0.44	0.21	3	2	10
Dieldrin	Meat	1994	11.52	6.43	3.73	4.07	1.40	0.32	3	2	3
Dieldrin	Meat	1995	6.50	5.77	3.93	0.15	0.23	0.33	3	3	3
Dieldrin	Meat	1996	8.53	9.50	3.77	0.74	1.83	0.32	3	3	3
Dieldrin	Meat	1997	6.80	6.27	4.23	0.76	1.07	0.34	3	3	3
Dieldrin	Meat	1998	3.75	3.81	2.38	0.25	0.06	0.09	3	3	3
Dieldrin	Meat	1999	6.79	5.15	4.26	0.06	0.15	0.17	3	3	3
Dieldrin	Meat	2000	3.19	2.95	2.27	0.44	0.22	0.18	3	3	3
Dieldrin	Meat	2001	3.67	3.92	2.83	0.29	0.15	0.15	3	3	3
Dieldrin	Meat	2002	2.69	2.57	1.74	0.15	0.03	0.14	3	3	3
Dieldrin	Meat	2003	3.52	3.33667	2.64667	0.07937	0.0437	0.03383	3	3	3
Endrin	Meat	1992	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3
Endrin	Meat	1993	0.00	0.00	0.00	0.00	0.00	0.00	3	2	10
Endrin	Meat	1994	0.00	0.00	0.00	0.00	0.00	0.00	3	2	3
Endrin	Meat	1995	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3
Endrin	Meat	1996	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3
Endrin	Meat	1997	0.00	0.40	0.56	0.00	0.40	0.08	3	3	3
Endrin	Meat	1998	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3
Endrin	Meat	1999	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3
Endrin	Meat	2000	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3
Endrin	Meat	2001	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3
Endrin	Meat	2002	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3
Endrin	Meat	2003	0	0	0	0	0	0	3	3	3
Hexachlorobenzene	Meat	1992	0.36	0.37	0.35	0.04	0.08	0.07	3	3	3
Hexachlorobenzene	Meat	1993	0.47	0.39	0.31	0.04	0.10	0.03	3	2	10
Hexachlorobenzene	Meat	1994	0.79	0.74	0.63	0.08	0.04	0.02	3	2	3
Hexachlorobenzene	Meat	1995	0.00	0.21	0.25	0.00	0.21	0.25	3	3	3
Hexachlorobenzene	Meat	1996	0.59	1.00	0.52	0.05	0.10	0.08	3	3	3
Hexachlorobenzene	Meat	1997	0.42	0.63	0.53	0.06	0.08	0.06	3	3	3

Table C-13. Lobster Meat Chemistry Data, 1992 – 2003.
(Continued)

			Means			SE			N		
Parameter	**Tissue**	**Year**	**DIF**	**OS**	**ECCB**	**DIF**	**OS**	**ECCB**	**DIF**	**OS**	**ECCB**
Hexachlorobenzene	Meat	1998	0.42	0.69	0.53	0.02	0.13	0.01	3	3	3
Hexachlorobenzene	Meat	1999	0.47	0.46	0.33	0.02	0.01	0.03	3	3	3
Hexachlorobenzene	Meat	2000	4.15	0.47	0.17	3.13	0.04	0.17	3	3	3
Hexachlorobenzene	Meat	2001	0.33	0.36	0.34	0.02	0.01	0.02	3	3	3
Hexachlorobenzene	Meat	2002	0.38	0.36	0.35	0.02	0.02	0.08	3	3	3
Hexachlorobenzene	Meat	2003	0.32	0.29333	0.30333	0.02887	0.0219	0.00882	3	3	3
Mirex	Meat	1992	0.27	0.24	0.29	0.06	0.02	0.11	3	3	3
Mirex	Meat	1993	0.39	0.27	0.28	0.06	0.05	0.05	3	2	10
Mirex	Meat	1994	0.26	0.16	0.29	0.05	0.16	0.05	3	2	3
Mirex	Meat	1995	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3
Mirex	Meat	1996	0.27	0.36	0.23	0.05	0.06	0.03	3	3	3
Mirex	Meat	1997	0.32	0.00	0.35	0.32	0.00	0.06	3	3	3
Mirex	Meat	1998	0.00	0.15	0.10	0.00	0.07	0.05	3	3	3
Mirex	Meat	1999	0.56	0.31	0.23	0.10	0.04	0.02	3	3	3
Mirex	Meat	2000	0.22	0.04	0.10	0.05	0.04	0.05	3	3	3
Mirex	Meat	2001	0.12	0.08	0.00	0.06	0.04	0.00	3	3	3
Mirex	Meat	2002	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3
Mirex	Meat	2003	0	0	0	0	0	0	3	3	3
Lindane	Meat	1992	0.80	0.00	0.00	0.80	0.00	0.00	3	3	3
Lindane	Meat	1993	4.95	4.93	4.70	0.62	0.30	0.97	3	2	10
Lindane	Meat	1994	0.00	0.00	0.00	0.00	0.00	0.00	3	2	3
Lindane	Meat	1995	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3
Lindane	Meat	1996	2.00	0.73	0.00	2.00	0.73	0.00	3	3	3
Lindane	Meat	1997	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3
Lindane	Meat	1998	0.00	0.87	0.89	0.00	0.87	0.89	3	3	3
Lindane	Meat	1999	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3
Lindane	Meat	2000	1.06	0.00	0.87	1.06	0.00	0.87	3	3	3
Lindane	Meat	2001	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3
Lindane	Meat	2002	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3
Lindane	Meat	2003	3.76	4.00667	3.34333	0.03786	0.1920	0.51853	3	3	3

Table C-14. Lobster Hepatopancreas Chemistry Data, 1992 – 2003.

			Means			SE			N		
Parameter	**Tissue**	**Year**	**DIF**	**OS**	**ECCB**	**DIF**	**OS**	**ECCB**	**DIF**	**OS**	**ECCB**
Lead	Hepatopancreas	1992	0.37	0.28	4.49	0.07	0.10	4.21	3	3	3
Lead	Hepatopancreas	1993	0.33	0.38	0.10	0.10	0.12	0.03	3	2	10
Lead	Hepatopancreas	1994	0.43	0.54	0.09	0.03	0.07	0.02	3	2	3
Lead	Hepatopancreas	1995	0.26	0.30	0.04	0.04	0.04	0.01	3	3	3
Lead	Hepatopancreas	1996	0.35	0.41	0.07	0.08	0.12	0.02	3	3	3
Lead	Hepatopancreas	1997	0.39	0.30	0.04	0.05	0.05	0.02	3	3	3
Lead	Hepatopancreas	1998	0.23	0.63	0.30	0.04	0.07	0.01	3	3	3
Lead	Hepatopancreas	1999	0.52	0.42	0.25	0.03	0.08	0.03	3	3	3
Lead	Hepatopancreas	2000	0.30	0.32	0.36	0.02	0.02	0.04	3	3	3
Lead	Hepatopancreas	2001	0.39	0.42	0.37	0.06	0.04	0.01	3	3	3
Lead	Hepatopancreas	2002	0.38	0.33	0.42	0.07	0.11	0.03	3	3	3
Lead	Hepatopancreas	2003	0.2953	0.372	0.20967	0.0413	0.0855	0.05176	3	3	3
Mercury	Hepatopancreas	1992	0.240	0.537	0.423	0.031	0.273	0.146	3	3	3
Mercury	Hepatopancreas	1993	0.296	0.236	0.192	0.056	0.044	0.039	3	2	10
Mercury	Hepatopancreas	1994	0.269	0.399	0.236	0.010	0.059	0.019	3	2	3
Mercury	Hepatopancreas	1995	0.350	0.335	0.271	0.032	0.050	0.068	3	3	3
Mercury	Hepatopancreas	1996	0.202	0.260	0.243	0.033	0.033	0.023	3	3	3
Mercury	Hepatopancreas	1997	0.432	0.437	0.400	0.082	0.045	0.013	3	3	3
Mercury	Hepatopancreas	1998	0.262	0.365	0.243	0.010	0.013	0.017	3	3	3
Mercury	Hepatopancreas	1999	0.302	0.528	0.317	0.016	0.079	0.019	3	3	3
Mercury	Hepatopancreas	2000	0.266	0.465	0.234	0.028	0.131	0.032	3	3	3
Mercury	Hepatopancreas	2001	0.252	0.314	0.241	0.040	0.029	0.018	3	3	3
Mercury	Hepatopancreas	2002	0.378	0.364	0.234	0.024	0.069	0.014	3	3	3
Mercury	Hepatopancreas	2003	0.3732	0.3370	0.20527	0.0359	0.0137	0.00389	3	3	3
Cadmium	Hepatopancreas	1992	6.15	12.97	27.12	2.65	2.60	11.22	3	3	3
Cadmium	Hepatopancreas	1993	3.33	13.26	10.92	0.68	4.24	1.62	3	2	10
Cadmium	Hepatopancreas	1994	8.31	12.30	16.14	1.63	2.31	3.56	3	2	3
Cadmium	Hepatopancreas	1995	5.29	5.32	7.94	0.25	0.59	0.22	3	3	3
Cadmium	Hepatopancreas	1996	3.32	9.30	14.44	0.33	1.20	0.47	3	3	3
Cadmium	Hepatopancreas	1997	6.98	11.89	13.71	1.06	1.89	0.98	3	3	3
Cadmium	Hepatopancreas	1998	3.98	17.32	7.56	0.95	3.60	0.36	3	3	3
Cadmium	Hepatopancreas	1999	4.58	15.53	12.42	0.35	3.85	1.51	3	3	3
Cadmium	Hepatopancreas	2000	6.41	11.00	9.44	0.44	0.75	2.01	3	3	3
Cadmium	Hepatopancreas	2001	8.10	15.50	12.70	1.12	0.45	0.29	3	3	3
Cadmium	Hepatopancreas	2002	11.02	15.92	13.27	2.68	3.96	0.64	3	3	3
Cadmium	Hepatopancreas	2003	11.437	12.144	10.7645	2.1153	1.4315	1.1701	3	3	3
Chromium	Hepatopancreas	1992	2.91	3.36	2.09	0.38	1.06	0.27	3	3	3
Chromium	Hepatopancreas	1993	1.46	1.27	1.09	0.05	0.06	0.11	3	2	10
Chromium	Hepatopancreas	1994	0.25	0.49	0.19	0.03	0.29	0.04	3	2	3
Chromium	Hepatopancreas	1995	0.24	0.18	0.09	0.04	0.03	0.03	3	3	3
Chromium	Hepatopancreas	1996	0.15	0.12	0.08	0.03	0.01	0.01	3	3	3
Chromium	Hepatopancreas	1997	0.26	0.30	0.10	0.02	0.07	0.02	3	3	3
Chromium	Hepatopancreas	1998	0.09	0.23	0.15	0.02	0.02	0.03	3	3	3
Chromium	Hepatopancreas	1999	0.19	0.17	0.22	0.02	0.06	0.08	3	3	3
Chromium	Hepatopancreas	2000	0.20	0.29	0.14	0.06	0.03	0.01	3	3	3

Table C-14. Lobster Hepatopancreas Chemistry Data, 1992 – 2002. (Continued)

			Means			SE			N		
Parameter	**Tissue**	**Year**	**DIF**	**OS**	**ECCB**	**DIF**	**OS**	**ECCB**	**DIF**	**OS**	**ECCB**
Chromium	Hepatopancreas	2001	0.31	0.28	0.25	0.03	0.01	0.03	3	3	3
Chromium	Hepatopancreas	2002	0.27	0.25	0.16	0.07	0.05	0.01	3	3	3
Chromium	Hepatopancreas	2003	0.3210	0.32681	0.34349	0.0243	0.03091	0.0166	3	3	3
Copper	Hepatopancreas	1992	261.37	440.77	1014.40	193.14	372.74	496.44	3	3	3
Copper	Hepatopancreas	1993	642.00	309.00	463.51	162.25	178.00	126.55	3	2	10
Copper	Hepatopancreas	1994	537.00	557.51	283.67	93.83	63.51	88.99	3	2	3
Copper	Hepatopancreas	1995	324.73	314.35	125.24	60.19	35.15	33.84	3	3	3
Copper	Hepatopancreas	1996	485.11	371.03	166.57	98.85	70.86	43.40	3	3	3
Copper	Hepatopancreas	1997	641.20	513.48	294.48	106.74	202.59	40.56	3	3	3
Copper	Hepatopancreas	1998	612.43	610.80	572.67	42.08	89.83	53.69	3	3	3
Copper	Hepatopancreas	1999	895.20	830.47	477.97	16.91	103.16	71.31	3	3	3
Copper	Hepatopancreas	2000	454.67	693.00	422.00	59.43	92.83	109.62	3	3	3
Copper	Hepatopancreas	2001	639.67	778.00	521.33	165.96	62.85	127.39	3	3	3
Copper	Hepatopancreas	2002	886.67	867.17	459.67	127.30	90.19	63.25	3	3	3
Copper	Hepatopancreas	2003	559.59	688.488	353.5311	78.5707	91.3852	20.5441	3	3	3
Nickel	Hepatopancreas	1992	0.80	1.60	0.95	0.42	0.99	0.33	3	3	3
Nickel	Hepatopancreas	1993	0.65	0.47	1.31	0.19	0.03	0.21	3	2	10
Nickel	Hepatopancreas	1994	0.44	0.97	1.19	0.05	0.20	0.07	3	2	3
Nickel	Hepatopancreas	1995	0.42	0.43	0.45	0.09	0.04	0.04	3	3	3
Nickel	Hepatopancreas	1996	0.13	0.39	0.68	0.02	0.02	0.04	3	3	3
Nickel	Hepatopancreas	1997	0.57	1.26	0.89	0.07	0.23	0.24	3	3	3
Nickel	Hepatopancreas	1998	0.36	1.21	0.73	0.01	0.03	0.11	3	3	3
Nickel	Hepatopancreas	1999	0.65	0.69	1.33	0.07	0.03	0.16	3	3	3
Nickel	Hepatopancreas	2000	0.48	1.27	0.73	0.08	0.33	0.09	3	3	3
Nickel	Hepatopancreas	2001	0.51	0.73	0.79	0.02	0.03	0.06	3	3	3
Nickel	Hepatopancreas	2002	0.77	1.24	1.40	0.07	0.20	0.12	3	3	3
Nickel	Hepatopancreas	2003	0.8802	1.05562	1.14601	0.05549	0.25821	0.1325	3	3	3
Silver	Hepatopancreas	1992	5.07	3.52	3.53	2.44	0.20	1.08	3	3	3
Silver	Hepatopancreas	1993	6.53	2.43	6.35	0.47	0.75	2.01	3	2	10
Silver	Hepatopancreas	1994	10.74	7.47	14.63	3.11	2.21	3.00	3	2	3
Silver	Hepatopancreas	1995	27.55	21.99	8.10	1.95	3.37	2.35	3	3	3
Silver	Hepatopancreas	1996	32.89	21.28	15.25	9.31	3.63	4.06	3	3	3
Silver	Hepatopancreas	1997	6.52	13.23	9.42	0.58	2.41	2.33	3	3	3
Silver	Hepatopancreas	1998	30.38	29.90	29.75	2.10	4.66	4.28	3	3	3
Silver	Hepatopancreas	1999	47.03	47.84	32.24	4.28	9.05	2.37	3	3	3
Silver	Hepatopancreas	2000	18.73	34.37	20.01	2.12	6.36	7.31	3	3	3
Silver	Hepatopancreas	2001	29.23	39.57	24.17	8.49	3.56	4.57	3	3	3
Silver	Hepatopancreas	2002	41.70	40.00	21.70	4.92	4.20	2.30	3	3	3
Silver	Hepatopancreas	2003	27.329	26.2833	16.02636	3.92349	1.52724	1.53859	3	3	3
Zinc	Hepatopancreas	1992	76.60	110.77	100.63	15.35	24.93	31.79	3	3	3
Zinc	Hepatopancreas	1993	74.80	83.55	49.73	34.54	33.45	6.90	3	2	10
Zinc	Hepatopancreas	1994	79.67	97.44	82.70	5.57	6.44	2.91	3	2	3
Zinc	Hepatopancreas	1995	43.94	51.60	54.44	2.24	3.18	1.30	3	3	3

Table C-14. Lobster Hepatopancreas Chemistry Data, 1992 – 2003. (Continued)

			Means			SE			N		
Parameter	**Tissue**	**Year**	**DIF**	**OS**	**ECCB**	**DIF**	**OS**	**ECCB**	**DIF**	**OS**	**ECCB**
Zinc	Hepatopancreas	1996	53.82	73.86	50.33	9.46	11.34	5.12	3	3	3
Zinc	Hepatopancreas	1997	84.09	80.33	57.92	23.69	13.78	3.42	3	3	3
Zinc	Hepatopancreas	1998	82.94	112.99	89.77	16.24	38.68	7.74	3	3	3
Zinc	Hepatopancreas	1999	88.07	47.37	75.73	7.41	5.39	3.06	3	3	3
Zinc	Hepatopancreas	2000	59.33	75.47	129.73	2.60	6.48	25.20	3	3	3
Zinc	Hepatopancreas	2001	74.63	104.83	94.67	8.01	14.44	10.16	3	3	3
Zinc	Hepatopancreas	2002	75.70	81.08	110.33	11.20	12.08	5.61	3	3	3
Zinc	Hepatopancreas	2003	77.21607	102.3138	78.1245	8.42596	5.5198	2.55484	3	3	3
Total DDT	Hepatopancreas	1992	609.88	475.34	207.87	232.06	165.46	48.12	3	3	3
Total DDT	Hepatopancreas	1993	639.71	288.25	285.43	27.37	70.55	33.18	3	2	10
Total DDT	Hepatopancreas	1994	404.87	308.72	165.56	49.21	118.94	12.76	3	2	3
Total DDT	Hepatopancreas	1995	670.50	929.90	745.93	155.45	29.58	92.05	3	3	3
Total DDT	Hepatopancreas	1996	1251.00	1025.80	702.17	68.59	30.50	117.10	3	3	3
Total DDT	Hepatopancreas	1997	1093.03	1088.70	788.87	644.25	359.71	142.08	3	3	3
Total DDT	Hepatopancreas	1998	1105.64	1033.51	761.26	26.17	74.84	23.37	3	3	3
Total DDT	Hepatopancreas	1999	1297.83	745.89	559.12	28.87	66.67	33.46	3	3	3
Total DDT	Hepatopancreas	2000	445.32	312.76	378.70	146.37	119.42	125.67	3	3	3
Total DDT	Hepatopancreas	2001	813.52	431.73	401.20	165.50	84.69	33.18	3	3	3
Total DDT	Hepatopancreas	2002	449.62	304.12	203.21	15.53	47.46	19.20	3	3	3
Total DDT	Hepatopancreas	2003	1,024.31	399.11	337.54	55.84	33.54	33.63	3.00	3.00	3.00
Total PCB	Hepatopancreas	1992	3253.52	2046.37	1205.90	509.59	356.67	394.22	3	3	3
Total PCB	Hepatopancreas	1993	2846.44	2254.62	2140.82	281.20	726.82	683.69	3	2	10
Total PCB	Hepatopancreas	1994	2482.48	2452.34	657.09	318.88	1527.2	60.81	3	2	3
Total PCB	Hepatopancreas	1995	4524.95	5234.00	2779.17	1354.20	342.50	305.36	3	3	3
Total PCB	Hepatopancreas	1996	7225.17	5582.57	2465.19	677.31	579.67	298.96	3	3	3
Total PCB	Hepatopancreas	1997	7109.33	4935.30	2477.73	2612.85	285.52	225.11	3	3	3
Total PCB	Hepatopancreas	1998	7722.70	6003.53	3409.83	178.89	240.69	154.81	3	3	3
Total PCB	Hepatopancreas	1999	10255.41	6353.51	3132.17	125.72	452.04	241.29	3	3	3
Total PCB	Hepatopancreas	2000	7578.50	2964.92	1920.72	4057.85	889.20	607.35	3	3	3
Total PCB	Hepatopancreas	2001	8018.57	3696.13	2029.80	2377.42	697.13	102.56	3	3	3
Total PCB	Hepatopancreas	2002	4464.96	2897.32	1268.28	82.20	436.88	89.88	3	3	3
Total PCB	Hepatopancreas	2003	10,135.86	12,782.1	1,731.90	1,335.32	9,581.6	90.91	3.00	3.00	3.00
Total PAH	Hepatopancreas	1992	29707.65	4060.10	4055.21	4885.54	272.53	731.12	3	3	3
Total PAH	Hepatopancreas	1993	11611.24	5782.40	3082.65	5639.79	2199.6	1001.65	3	2	10
Total PAH	Hepatopancreas	1994	16577.81	4602.39	786.94	2921.49	280.45	75.12	3	2	3
Total PAH	Hepatopancreas	1995	5386.28	6576.33	4321.43	716.50	669.94	836.64	3	3	3
Total PAH	Hepatopancreas	1996	12816.17	6243.43	2372.37	2478.38	1642.5	701.95	3	3	3
Total PAH	Hepatopancreas	1997	8424.20	3059.50	q	5170.05	1153.7	q	3	3	q
Total PAH	Hepatopancreas	1998	7413.13	2429.48	1478.32	500.61	249.53	84.87	3	3	3
Total PAH	Hepatopancreas	1999	7597.25	1562.97	1309.69	810.43	165.05	78.11	3	3	3
Total PAH	Hepatopancreas	2000	13051.28	2726.61	1364.43	2788.12	850.82	131.47	3	3	3
Total PAH	Hepatopancreas	2001	10733.90	2196.43	1410.87	1543.21	269.82	77.40	3	3	3
Total PAH	Hepatopancreas	2002	7099.32	4074.68	1291.90	1950.40	1109.3	32.13	3	3	3

Table C-14. Lobster Hepatopancreas Chemistry Data, 1992 – 2003.
(Continued)

			Means			SE			N		
Parameter	**Tissue**	**Year**	**DIF**	**OS**	**ECCB**	**DIF**	**OS**	**ECCB**	**DIF**	**OS**	**ECCB**
Total Chlordane	Hepatopancreas	1992	196.70	50.75	18.63	106.73	22.64	8.93	3	3	3
Total Chlordane	Hepatopancreas	1993	191.99	46.52	73.87	5.25	4.62	25.57	3	2	10
Total Chlordane	Hepatopancreas	1994	116.33	21.42	13.21	19.70	6.91	2.08	3	2	3
Total Chlordane	Hepatopancreas	1995	38.67	73.67	65.00	13.57	37.02	22.72	3	3	3
Total Chlordane	Hepatopancreas	1996	199.00	156.67	81.20	16.26	22.88	19.00	3	3	3
Total Chlordane	Hepatopancreas	1997	137.63	57.87	41.59	24.88	11.20	6.95	3	3	3
Total Chlordane	Hepatopancreas	1998	233.81	93.87	42.02	4.66	6.03	2.84	3	3	3
Total Chlordane	Hepatopancreas	1999	138.04	57.94	31.85	14.51	6.75	3.22	3	3	3
Total Chlordane	Hepatopancreas	2000	89.25	37.76	33.24	25.43	15.05	2.22	3	3	3
Total Chlordane	Hepatopancreas	2001	97.12	37.14	22.29	6.85	5.45	2.38	3	3	3
Total Chlordane	Hepatopancreas	2002	55.90	40.54	18.61	3.16	3.39	3.91	3	3	3
Total Chlordane	Hepatopancreas	2003	70.64	34.17	22.10	4.65829	10.69	2.41	3	3.00	3.00
Aldrin	Hepatopancreas	1992	2.53	0.00	0.00	2.53	0.00	0.00	3	3	3
Aldrin	Hepatopancreas	1993	0.00	0.00	0.00	0.00	0.00	0.00	3	2	10
Aldrin	Hepatopancreas	1994	0.00	0.00	0.00	0.00	0.00	0.00	3	2	3
Aldrin	Hepatopancreas	1995	0.00	2.80	0.00	0.00	1.49	0.00	3	3	3
Aldrin	Hepatopancreas	1996	5.53	2.37	1.00	0.90	1.19	0.50	3	3	3
Aldrin	Hepatopancreas	1997	1.50	0.00	0.00	0.76	0.00	0.00	3	3	3
Aldrin	Hepatopancreas	1998	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3
Aldrin	Hepatopancreas	1999	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3
Aldrin	Hepatopancreas	2000	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3
Aldrin	Hepatopancreas	2001	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3
Aldrin	Hepatopancreas	2002	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3
Aldrin	Hepatopancreas	2003	0	0	0	0	0	0	3	3	3
Dieldrin	Hepatopancreas	1992	65.73	27.01	13.41	23.60	9.97	4.75	3	3	3
Dieldrin	Hepatopancreas	1993	124.70	56.60	39.79	25.34	10.59	5.41	3	2	10
Dieldrin	Hepatopancreas	1994	40.75	17.08	9.41	13.69	7.30	2.83	3	2	3
Dieldrin	Hepatopancreas	1995	52.67	106.67	30.00	26.84	11.79	15.04	3	3	3
Dieldrin	Hepatopancreas	1996	126.67	143.33	50.33	14.53	43.33	6.01	3	3	3
Dieldrin	Hepatopancreas	1997	46.00	50.67	32.67	4.16	12.13	2.19	3	3	3
Dieldrin	Hepatopancreas	1998	44.56	45.11	25.85	3.86	3.71	0.83	3	3	3
Dieldrin	Hepatopancreas	1999	59.63	51.66	28.13	3.69	6.31	1.94	3	3	3
Dieldrin	Hepatopancreas	2000	61.94	35.54	25.50	12.64	8.05	2.27	3	3	3
Dieldrin	Hepatopancreas	2001	48.10	27.09	20.55	8.06	6.65	1.25	3	3	3
Dieldrin	Hepatopancreas	2002	17.40	15.33	9.68	2.88	1.31	1.80	3	3	3
Dieldrin	Hepatopancreas	2003	45.84	28.26	20.68	4.13213	2.17173	1.26463	3	3	3
Endrin	Hepatopancreas	1992	0.00	0.00	11.80	0.00	0.00	11.80	3	3	3
Endrin	Hepatopancreas	1993	0.00	0.00	0.00	0.00	0.00	0.00	3	2	10
Endrin	Hepatopancreas	1994	0.00	0.00	6.45	0.00	0.00	3.84	3	2	3
Endrin	Hepatopancreas	1995	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3
Endrin	Hepatopancreas	1996	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3
Endrin	Hepatopancreas	1997	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3
Endrin	Hepatopancreas	1998	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3

Table C-14. Lobster Hepatopancreas Chemistry Data, 1992 – 2003.
(Continued)

			Means			SE			N		
Parameter	**Tissue**	**Year**	**DIF**	**OS**	**ECCB**	**DIF**	**OS**	**ECCB**	**DIF**	**OS**	**ECCB**
Endrin	Hepatopancreas	1999	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3
Endrin	Hepatopancreas	2000	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3
Endrin	Hepatopancreas	2001	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3
Endrin	Hepatopancreas	2002	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3
Endrin	Hepatopancreas	2003	0	0	0	0	0	0	3	3	3
Hexachlorobenzene	Hepatopancreas	1992	11.79	7.64	40.62	4.80	1.50	36.18	3	3	3
Hexachlorobenzene	Hepatopancreas	1993	9.03	8.26	8.83	1.66	1.39	1.66	3	2	10
Hexachlorobenzene	Hepatopancreas	1994	7.03	5.46	26.60	0.77	3.08	13.46	3	2	3
Hexachlorobenzene	Hepatopancreas	1995	10.13	11.67	8.80	0.75	0.33	0.90	3	3	3
Hexachlorobenzene	Hepatopancreas	1996	17.00	17.33	13.67	1.00	0.33	1.20	3	3	3
Hexachlorobenzene	Hepatopancreas	1997	9.13	13.27	11.30	0.93	3.37	0.91	3	3	3
Hexachlorobenzene	Hepatopancreas	1998	7.75	9.79	6.97	2.15	0.36	0.02	3	3	3
Hexachlorobenzene	Hepatopancreas	1999	6.97	8.81	7.04	0.34	0.67	0.38	3	3	3
Hexachlorobenzene	Hepatopancreas	2000	14.03	11.17	9.83	5.93	2.71	0.95	2	3	3
Hexachlorobenzene	Hepatopancreas	2001	7.45	7.25	8.18	3.98	1.35	0.51	3	3	3
Hexachlorobenzene	Hepatopancreas	2002	10.00	10.40	8.07	0.30	1.48	1.59	3	3	3
Hexachlorobenzene	Hepatopancreas	2003	5.31	4.82667	4.59	0.2623	1.50869	0.28449	3	3	3
Mirex	Hepatopancreas	1992	8.39	6.52	2.68	1.25	3.27	1.99	3	3	3
Mirex	Hepatopancreas	1993	6.27	7.63	6.10	0.19	2.12	1.18	3	2	10
Mirex	Hepatopancreas	1994	0.00	0.00	0.00	0.00	0.00	0.00	3	2	3
Mirex	Hepatopancreas	1995	7.05	8.57	6.10	0.73	0.59	0.51	3	3	3
Mirex	Hepatopancreas	1996	7.90	10.37	8.03	0.20	0.63	0.69	3	3	3
Mirex	Hepatopancreas	1997	8.00	10.37	7.83	1.00	2.89	1.06	3	3	3
Mirex	Hepatopancreas	1998	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3
Mirex	Hepatopancreas	1999	11.43	9.76	6.92	3.59	0.54	0.37	3	3	3
Mirex	Hepatopancreas	2000	7.55	3.75	4.02	2.92	0.89	0.81	3	3	3
Mirex	Hepatopancreas	2001	6.40	5.23	5.36	1.26	1.00	0.51	3	3	3
Mirex	Hepatopancreas	2002	0.00	0.00	0.00	0.00	0.00	0.00	3	3	3
Mirex	Hepatopancreas	2003	0	0	0	0	0	0	3	3	3
Lindane	Hepatopancreas	1992	1.10	0.79	0.00	1.10	0.79	0.00	3	3	3
Lindane	Hepatopancreas	1993	6.86	3.84	10.16	0.48	3.84	1.93	3	2	10
Lindane	Hepatopancreas	1994	0.00	0.00	0.00	0.00	0.00	0.00	3	2	3
Lindane	Hepatopancreas	1995	5.50	5.13	2.67	0.26	0.90	0.32	3	3	3
Lindane	Hepatopancreas	1996	7.10	6.13	0.00	3.63	0.69	0.00	3	3	3
Lindane	Hepatopancreas	1997	3.27	2.33	0.00	0.52	0.12	0.00	3	3	3
Lindane	Hepatopancreas	1998	4.09	2.99	3.61	0.31	0.10	0.41	3	3	3
Lindane	Hepatopancreas	1999	0.00	1.80	2.52	0.00	0.90	0.04	3	3	3
Lindane	Hepatopancreas	2000	s	s	1.53	s	s	1.01	s	s	3
Lindane	Hepatopancreas	2001	4.06	3.03	2.45	0.31	0.49	0.55	3	3	3
Lindane	Hepatopancreas	2002	3.13	3.05	2.23	0.16	0.04	0.24	3	3	3
Lindane	Hepatopancreas	2003	2.8	2.07333	2.54333	0.1823	0.78728	0.2862	3	3	3

Table C-15. Mussel Chemistry Data, 1991 – 2003.

		Means									SE								
Param.	**Year**	**GL**	**SA**	**RP**	**SP**	**IH**	**DIL**	**OSM**	**LNB**	**CCB**	**GL**	**SA**	**RP**	**SP**	**IH**	**DIL**	**OSM**	**LNB**	**CCB**
Lead	1991	6.52	NA	NA	NA	6.40	5.85	NA	NA	NA	0.77	NA	NA	NA	0.83	0.30	NA	NA	NA
Lead	1992	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	1993	5.12	NA	NA	NA	NA	5.88	3.71	NA	NA	0.41	NA	NA	NA	NA	1.40	0.30	NA	NA
Lead	1994	8.60	NA	NA	NA	6.67	9.13	4.80	NA	NA	2.61	NA	NA	NA	1.29	1.15	0.22	NA	NA
Lead	1995	6.05	NA	NA	NA	8.53	8.40	NA	NA	NA	0.36	NA	NA	NA	0.51	0.76	NA	NA	NA
Lead	1996	NA	2.86	NA	NA	9.36	6.27	1.57	NA	NA	NA	0.73	NA	NA	0.98	0.58	0.14	NA	NA
Lead	1997	NA	2.44	NA	NA	9.89	7.83	2.09	NA	NA	NA	0.34	NA	NA	1.61	0.49	0.09	NA	NA
Lead	1998	NA	2.85	NA	NA	4.09	3.47	2.14	NA	1.95	NA	0.35	NA	NA	0.22	0.73	0.17	NA	0.15
Lead	1999	NA	1.56	NA	NA	4.69	NA	1.09	NA	1.26	NA	0.15	NA	NA	0.36	NA	0.08	NA	0.09
Lead	2000	NA	NA	1.52	NA	13.21	6.93	0.94	NA	NA	NA	NA	0.06	NA	0.97	0.95	0.06	NA	NA
Lead	2001	NA	NA	1.91	NA	10.06	3.50	1.86	NA	1.75	NA	NA	0.22	NA	0.90	0.27	0.10	NA	0.20
Lead	2002	NA	NA	NA	2.38	8.04	5.16	2.54	1.69	1.54	NA	NA	NA	0.09	0.32	0.18	0.06	0.04	0.05
Lead	2003	NA	NA	NA	1.66	9.112	2.586	1.7263	1.463	1.45	NA	NA	NA	0.025	0.532	0.0412	0.06	0.124	0.046
Mercury	1991	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	1992	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	1993	0.39	NA	NA	NA	NA	0.18	0.10	NA	NA	0.07	NA	NA	NA	NA	0.01	0.00	NA	NA
Mercury	1994	0.17	NA	NA	NA	0.16	0.21	0.13	NA	NA	0.09	NA	NA	NA	0.00	0.04	0.01	NA	NA
Mercury	1995	NA	0.06	NA	NA	0.08	0.06	NA	NA	NA	NA	0.01	NA	NA	0.04	0.02	NA	NA	NA
Mercury	1996	NA	0.13	NA	NA	0.13	0.15	0.15	NA	NA	NA	0.06	NA	NA	0.01	0.02	0.04	NA	NA
Mercury	1997	NA	0.17	NA	NA	0.32	0.06	0.10	NA	NA	NA	0.02	NA	NA	0.04	0.02	0.04	NA	NA
Mercury	1998	NA	0.10	NA	NA	0.11	0.10	0.09	NA	0.07	NA	0.01	NA	NA	0.00	0.01	0.00	NA	0.01
Mercury	1999	NA	0.08	NA	NA	0.10	NA	0.06	NA	0.05	NA	0.00	NA	NA	0.00	NA	0.00	NA	0.00
Mercury	2000	NA	NA	0.12	NA	0.18	0.16	0.11	NA	NA	NA	NA	0.01	NA	0.01	0.01	0.00	NA	NA
Mercury	2001	NA	NA	0.15	NA	0.20	0.13	0.14	NA	0.10	NA	NA	0.02	NA	0.03	0.00	0.00	NA	0.01
Mercury	2002	NA	NA	NA	0.16	0.19	0.18	0.17	0.14	0.12	NA	NA	NA	0.00	0.01	0.00	0.00	0.00	0.00
Mercury	2003	NA	NA	NA	0.1183	0.1524	0.13	0.132	0.112	0.115	NA	NA	NA	0.001	0.009	0.003	0.00	0.004	0.002
Total DDT	1991	24.78	NA	NA	NA	89.18	45.64	NA	NA	NA	6.36	NA	NA	NA	10.77	4.13	NA	NA	NA
Total DDT	1992	17.63	NA	NA	NA	99.48	21.73	8.91	NA	NA	1.63	NA	NA	NA	18.82	1.78	0.54	NA	NA
Total DDT	1993	NA	NA	NA	NA	127.98	57.50	25.58	NA	NA	NA	NA	NA	NA	26.87	8.67	2.12	NA	NA
Total DDT	1994	24.31	NA	NA	NA	77.72	49.17	16.78	NA	NA	1.49	NA	NA	NA	5.83	2.41	1.47	NA	NA
Total DDT	1995	28.56	NA	NA	NA	91.48	44.80	NA	NA	NA	0.55	NA	NA	NA	5.47	1.03	NA	NA	NA
Total DDT	1996	56.77	NA	NA	NA	118.50	84.40	29.02	NA	NA	6.20	NA	NA	NA	8.60	7.37	1.16	NA	NA
Total DDT	1997	51.76	NA	NA	NA	134.86	60.04	22.42	NA	NA	3.05	NA	NA	NA	9.61	3.04	1.23	NA	NA
Total DDT	1998	34.08	55.81	NA	NA	81.95	38.04	19.91	NA	15.82	1.45	0.00	NA	NA	5.12	0.63	1.03	NA	0.85
Total DDT	1999	34.34	NA	NA	NA	85.90	NA	12.19	NA	17.72	3.65	NA	NA	NA	3.14	NA	0.47	NA	0.69
Total DDT	2000	NA	NA	3.31	NA	99.97	32.68	7.88	NA	NA	NA	NA	0.24	NA	7.07	2.49	0.65	NA	NA
Total DDT	2001	NA	NA	6.71	NA	47.67	25.33	15.23	10.61	15.11	NA	NA	0.80	NA	2.01	0.71	0.59	0.48	0.87
Total DDT	2002	NA	NA	NA	6.78	47.71	19.98	17.92	14.23	9.63	NA	NA	NA	0.45	1.86	1.67	0.68	0.34	0.64
Total DDT	2003	NA	NA	NA	6.8696	115.14	26.333	15.627	13.73	11.895	NA	NA	NA	0.3454	7.663	1.6722	0.673	0.1631	0.1968
Total PCB	1991	61.46	NA	NA	NA	462.04	194.73	NA	NA	NA	14.91	NA	NA	NA	34.85	12.93	NA	NA	NA
Total PCB	1992	46.72	NA	NA	NA	639.43	123.76	34.30	NA	NA	3.22	NA	NA	NA	87.00	8.73	2.72	NA	NA

Table C-15. Mussel Chemistry Data, 1991 – 2003. (Continued)

		Means									SE								
Parameter	Year	GL	SA	RP	SP	IH	DIL	OSM	LNB	CCB	GL	SA	RP	SP	IH	DIL	OSM	LNB	CCB
Total PCB	1993	NA	NA	NA	NA	480.00	264.34	89.05	NA	NA	NA	NA	NA	NA	47.98	36.12	2.68	NA	NA
Total PCB	1994	104.03	NA	NA	NA	484.36	157.46	85.14	NA	NA	2.73	NA	NA	NA	71.34	5.65	6.22	NA	NA
Total PCB	1995	88.65	NA	NA	NA	436.02	164.75	NA	NA	NA	1.01	NA	NA	NA	14.49	4.43	NA	NA	NA
Total PCB	1996	156.59	NA	NA	NA	532.56	268.68	98.78	NA	NA	12.04	NA	NA	NA	25.31	16.16	3.62	NA	NA
Total PCB	1997	131.09	NA	NA	NA	752.68	355.57	97.34	NA	NA	5.18	NA	NA	NA	44.53	11.67	2.23	NA	NA
Total PCB	1998	63.16	79.11	NA	NA	460.02	161.35	58.81	NA	48.90	1.15	0.00	NA	NA	29.22	13.28	2.75	NA	2.00
Total PCB	1999	53.73	NA	NA	NA	491.80	NA	36.87	NA	47.66	4.62	NA	NA	NA	20.94	NA	1.07	NA	1.93
Total PCB	2000	NA	NA	9.13	NA	592.29	215.25	35.49	NA	NA	NA	NA	0.87	NA	33.92	13.99	1.43	NA	NA
Total PCB	2001	NA	NA	18.75	NA	398.09	219.39	81.01	64.30	70.54	NA	NA	2.68	NA	10.37	8.72	2.56	1.78	5.07
Total PCB	2002	NA	NA	NA	20.47	297.51	165.80	64.33	54.50	40.56	NA	NA	NA	0.90	10.76	12.91	1.08	0.61	2.36
Total PCB	2003	NA	NA	NA	15.22	484.297	196.4931	65.19	61.93	41.01	NA	NA	NA	0.57	32.22	13.94	2.88	0.326	0.305
LMW PAH	1991	78.00	NA	NA	NA	209.00	528.25	NA	NA	NA	23.18	NA	NA	NA	21.43	88.49	NA	NA	NA
LMW PAH	1992	70.14	NA	NA	NA	194.78	426.01	27.33	NA	NA	6.43	NA	NA	NA	44.15	48.37	1.54	NA	NA
LMW PAH	1993	16.17	NA	NA	NA	92.00	163.67	33.25	NA	NA	6.50	NA	NA	NA	15.13	22.41	4.37	NA	NA
LMW PAH	1994	71.67	NA	NA	NA	53.33	203.67	14.71	NA	NA	3.18	NA	NA	NA	4.37	8.41	1.87	NA	NA
LMW PAH	1995	51.60	NA	NA	NA	155.60	122.85	NA	NA	NA	1.66	NA	NA	NA	3.03	2.70	NA	NA	NA
LMW PAH	1996	138.70	NA	NA	NA	189.62	226.68	41.48	NA	NA	17.92	NA	NA	NA	6.36	41.08	4.14	NA	NA
LMW PAH	1997	65.70	NA	NA	NA	147.50	83.46	40.75	NA	NA	8.75	NA	NA	NA	12.21	2.00	12.20	NA	NA
LMW PAH	1998	104.27	65.76	NA	NA	181.76	63.40	18.75	NA	19.00	12.40	0.00	NA	NA	21.55	4.77	1.11	NA	1.38
LMW PAH	1999	184.80	NA	NA	NA	175.70	NA	21.46	NA	33.66	24.22	NA	NA	NA	16.20	NA	0.47	NA	1.71
LMW PAH	2000	NA	NA	105.9	NA	277.20	119.46	106.42	NA	NA	NA	NA	9.76	NA	13.55	12.28	8.81	NA	NA
LMW PAH	2001	NA	NA	23.78	NA	114.32	38.26	25.79	28.87	23.80	NA	NA	2.31	NA	9.03	1.83	0.71	2.86	1.82
LMW PAH	2002	NA	NA	NA	24.75	80.29	36.30	39.95	20.78	4.54	NA	NA	NA	2.17	6.90	1.99	5.50	0.76	0.19
LMW PAH	2003	NA	NA	NA	25.65	172.688	29.326	32.85	23.13	13.54	NA	NA	NA	1.49	15.12	1.986	1.66	0.269	0.944
HMW PAH	1991	78.40	NA	NA	NA	2324.50	699.56	NA	NA	NA	25.23	NA	NA	NA	206.8	74.42	NA	NA	NA
HMW PAH	1992	132.42	NA	NA	NA	3343.44	1504.43	45.10	NA	NA	21.20	NA	NA	NA	404.9	127.4	7.39	NA	NA
HMW PAH	1993	105.00	NA	NA	NA	1210.33	495.17	83.63	NA	NA	25.67	NA	NA	NA	73.10	54.30	12.45	NA	NA
HMW PAH	1994	132.33	NA	NA	NA	2175.67	632.67	18.29	NA	NA	59.88	NA	NA	NA	230.6	68.81	5.06	NA	NA
HMW PAH	1995	93.08	NA	NA	NA	1238.00	415.30	NA	NA	NA	6.15	NA	NA	NA	29.54	19.52	NA	NA	NA
HMW PAH	1996	195.13	NA	NA	NA	2232.80	799.36	37.13	NA	NA	19.05	NA	NA	NA	127.3	129.1	1.65	NA	NA
HMW PAH	1997	88.47	NA	NA	NA	1345.36	260.98	23.67	NA	NA	3.82	NA	NA	NA	96.48	13.91	1.67	NA	NA
HMW PAH	1998	138.57	58.10	NA	NA	1865.23	154.32	19.75	NA	20.56	6.45	0.00	NA	NA	107.4	2.69	0.66	NA	1.62
HMW PAH	1999	481.22	NA	NA	NA	2506.05	NA	25.13	NA	17.85	110.08	NA	NA	NA	107.2	NA	0.74	NA	1.01
HMW PAH	2000	NA	NA	28.83	NA	2182.52	365.56	43.17	NA	NA	NA	NA	2.87	NA	140.7	30.81	1.74	NA	NA
HMW PAH	2001	NA	NA	38.05	NA	1281.66	209.74	197.85	100.8	60.76	NA	NA	3.49	NA	64.23	6.56	4.58	8.37	2.11
HMW PAH	2002	NA	NA	NA	49.53	837.39	149.93	212.03	103.0	13.33	NA	NA	NA	5.40	182.8	2.59	17.16	1.83	1.83
HMW PAH	2003	NA	NA	NA	38.93	1,747.6	135.894	288.1	133.9	30.52	NA	NA	NA	2.27	129.7	7.969	13.49	5.058	0.771
Total CHLOR	1991	2.48	NA	NA	NA	20.86	18.24	NA	NA	NA	1.37	NA	NA	NA	2.27	1.68	NA	NA	NA
Total CHLOR	1992	2.85	NA	NA	NA	45.53	17.97	4.92	NA	NA	0.57	NA	NA	NA	6.16	1.43	0.44	NA	NA
Total CHLOR	1993	NA	NA	NA	NA	22.23	19.38	7.85	NA	NA	NA	NA	NA	NA	2.57	2.20	0.25	NA	NA

Table C-15. Mussel Chemistry Data, 1991 – 2003. (Continued)

		Means									SE								
Parameter	Year	GL	SA	RP	SP	IH	DIL	OSM	LNB	CCB	GL	SA	RP	SP	IH	DIL	OSM	LNB	CCB
Total CHLOR	1994	9.82	NA	NA	NA	25.23	26.69	8.22	NA	NA	0.70	NA	NA	NA	1.92	1.81	0.39	NA	NA
Total CHLOR	1995	3.18	NA	NA	NA	20.78	11.70	NA	NA	NA	0.18	NA	NA	NA	1.23	0.22	NA	NA	NA
Total CHLOR	1996	9.77	NA	NA	NA	31.22	40.96	7.25	NA	NA	0.94	NA	NA	NA	2.30	3.43	0.44	NA	NA
Total CHLOR	1997	8.80	NA	NA	NA	29.04	20.43	6.18	NA	NA	0.26	NA	NA	NA	2.23	1.06	0.28	NA	NA
Total CHLOR	1998	6.79	14.15	NA	NA	25.76	24.97	10.47	NA	8.30	0.21	0.00	NA	NA	1.77	0.56	0.74	NA	0.54
Total CHLOR	1999	7.63	NA	NA	NA	22.50	NA	7.72	NA	7.52	0.98	NA	NA	NA	1.05	NA	0.25	NA	0.24
Total CHLOR	2000	NA	NA	2.61	NA	28.35	13.80	4.96	NA	NA	NA	NA	0.17	NA	2.64	0.74	0.37	NA	NA
Total CHLOR	2001	NA	NA	2.87	NA	12.25	8.69	18.55	13.92	4.81	NA	NA	0.26	NA	0.53	0.23	0.67	0.63	0.24
Total CHLOR	2002	NA	NA	NA	2.06	12.60	7.36	16.85	11.41	4.05	NA	NA	NA	0.15	0.53	0.73	1.14	0.45	0.31
Total CHLOR	2003	NA	NA	NA	1.615	26.56	9.99	16.62	12.56	4.17	NA	NA	NA	0.08	2.07	0.65	0.61	0.24	0.07
Aldrin	1991	0.00	NA	NA	NA	0.00	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	0.00	NA	NA	NA
Aldrin	1992	0.00	NA	NA	NA	0.00	0.00	0.00	NA	NA	0.00	NA	NA	NA	0.00	0.00	0.00	NA	NA
Aldrin	1993	NA	NA	NA	NA	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	0.00	0.00	0.00	NA	NA
Aldrin	1994	1.22	NA	NA	NA	0.00	0.00	0.38	NA	NA	1.22	NA	NA	NA	0.00	0.00	0.14	NA	NA
Aldrin	1995	0.00	NA	NA	NA	0.00	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	0.00	NA	NA	NA
Aldrin	1996	0.00	NA	NA	NA	0.00	0.00	0.00	NA	NA	0.00	NA	NA	NA	0.00	0.00	0.00	NA	NA
Aldrin	1997	0.00	NA	NA	NA	0.00	0.00	0.00	NA	NA	0.00	NA	NA	NA	0.00	0.00	0.00	NA	NA
Aldrin	1998	0.00	0.00	NA	NA	0.00	0.00	0.00	NA	0.00	0.00	0.00	NA	NA	0.00	0.00	0.00	NA	0.00
Aldrin	1999	0.00	NA	NA	NA	0.00	NA	0.00	NA	0.00	0.00	NA	NA	NA	0.00	NA	0.00	NA	0.00
Aldrin	2000	NA	NA	0.00	NA	0.00	0.00	0.00	NA	NA	NA	NA	0.00	NA	0.00	0.00	0.00	NA	NA
Aldrin	2001	NA	NA	0.00	NA	0.00	0.00	0.00	0.00	0.00	NA	NA	0.00	NA	0.00	0.00	0.00	0.00	0.00
Aldrin	2002	NA	NA	NA	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	0.00	0.00	0.00	0.00	0.00	0.00
Aldrin	2003				0	0	0	0	0	0				0	0	0	0	0	0
Dieldrin	1991	0.00	NA	NA	NA	9.00	2.92	NA	NA	NA	0.00	NA	NA	NA	0.84	0.25	NA	NA	NA
Dieldrin	1992	0.15	NA	NA	NA	6.73	2.66	1.09	NA	NA	0.15	NA	NA	NA	1.03	0.25	0.18	NA	NA
Dieldrin	1993	NA	NA	NA	NA	4.53	3.16	2.24	NA	NA	NA	NA	NA	NA	0.82	0.91	0.07	NA	NA
Dieldrin	1994	0.73	NA	NA	NA	14.57	10.35	1.97	NA	NA	0.73	NA	NA	NA	9.87	0.42	0.13	NA	NA
Dieldrin	1995	1.54	NA	NA	NA	6.94	3.15	NA	NA	NA	0.06	NA	NA	NA	0.35	0.09	NA	NA	NA
Dieldrin	1996	0.00	NA	NA	NA	9.28	5.60	1.36	NA	NA	0.00	NA	NA	NA	0.96	0.60	0.84	NA	NA
Dieldrin	1997	2.28	NA	NA	NA	7.14	3.40	2.02	NA	NA	0.08	NA	NA	NA	0.29	0.25	0.10	NA	NA
Dieldrin	1998	2.83	5.67	NA	NA	7.61	4.10	2.25	NA	2.82	0.13	0.00	NA	NA	0.40	0.08	0.09	NA	0.13
Dieldrin	1999	1.44	NA	NA	NA	9.06	NA	1.47	NA	1.57	0.12	NA	NA	NA	0.51	NA	0.04	NA	0.08
Dieldrin	2000	NA	NA	0.00	NA	9.01	3.55	1.74	NA	NA	NA	NA	0.00	NA	0.63	0.10	0.09	NA	NA
Dieldrin	2001	NA	NA	0.59	NA	2.94	1.58	1.86	1.57	1.19	NA	NA	0.10	NA	0.20	0.08	0.05	0.07	0.18
Dieldrin	2002	NA	NA	NA	1.38	4.47	2.33	2.06	1.75	1.64	NA	NA	NA	0.03	0.18	0.16	0.06	0.04	0.08
Dieldrin	2003	NA	NA	NA	1.13	6.94	2.45	1.89	1.70	1.34	NA	NA	NA	0.05	0.55	0.14	0.10	0.064	0.051
Endrin	1991	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin	1992	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin	1993	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin	1994	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table C-15. Mussel Chemistry Data, 1991 – 2003. (Continued)

		Means									SE								
Parameter	Year	GL	SA	RP	SP	IH	DIL	OSM	LNB	CCB	GL	SA	RP	SP	IH	DIL	OSM	LNB	CCB
Endrin	1995	0.00	NA	NA	NA	0.00	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	0.00	NA	NA	NA
Endrin	1996	0.00	NA	NA	NA	0.00	0.00	0.00	NA	NA	0.00	NA	NA	NA	0.00	0.00	0.00	NA	NA
Endrin	1997	0.00	NA	NA	NA	0.00	0.00	0.00	NA	NA	0.00	NA	NA	NA	0.00	0.00	0.00	NA	NA
Endrin	1998	0.00	0.00	NA	NA	0.00	0.00	0.00	NA	0.00	0.00	0.00	NA	NA	0.00	0.00	0.00	NA	0.00
Endrin	1999	0.00	NA	NA	NA	0.00	NA	0.00	NA	0.00	0.00	NA	NA	NA	0.00	NA	0.00	NA	0.00
Endrin	2000	NA	NA	0.00	NA	0.00	0.00	0.12	NA	NA	NA	NA	0.00	NA	0.00	0.00	0.12	NA	NA
Endrin	2001	NA	NA	0.00	NA	0.00	0.00	0.00	0.00	0.00	NA	NA	0.00	NA	0.00	0.00	0.00	0.00	0.00
Endrin	2002	NA	NA	NA	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	0.00	0.00	0.00	0.00	0.00	0.00
Endrin	2003	NA	NA	NA	0	0	0	0	0	0	NA	NA	NA	0	0	0	0	0	0
Hexachlorobenzene	1991	0.00	NA	NA	NA	0.00	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	0.00	NA	NA	NA
Hexachlorobenzene	1992	0.00	NA	NA	NA	0.00	0.00	0.00	NA	NA	0.00	NA	NA	NA	0.00	0.00	0.00	NA	NA
Hexachlorobenzene	1993	NA	NA	NA	NA	14.20	2.66	0.06	NA	NA	NA	NA	NA	NA	5.93	0.88	0.06	NA	NA
Hexachlorobenzene	1994	0.91	NA	NA	NA	0.00	0.00	0.10	NA	NA	0.58	NA	NA	NA	0.00	0.00	0.10	NA	NA
Hexachlorobenzene	1995	0.24	NA	NA	NA	0.74	0.63	NA	NA	NA	0.09	NA	NA	NA	0.09	0.09	NA	NA	NA
Hexachlorobenzene	1996	0.98	NA	NA	NA	1.48	0.72	0.65	NA	NA	0.28	NA	NA	NA	0.11	0.19	0.05	NA	NA
Hexachlorobenzene	1997	0.53	NA	NA	NA	0.68	0.44	0.23	NA	NA	0.04	NA	NA	NA	0.02	0.05	0.01	NA	NA
Hexachlorobenzene	1998	0.00	0.00	NA	NA	0.00	0.00	0.00	NA	0.00	0.00	0.00	NA	NA	0.00	0.00	0.00	NA	0.00
Hexachlorobenzene	1999	0.38	NA	NA	NA	0.45	NA	0.22	NA	0.36	0.08	NA	NA	NA	0.03	NA	0.03	NA	0.03
Hexachlorobenzene	2000	NA	NA	0.00	NA	1.04	0.39	0.44	NA	NA	NA	NA	0.00	NA	0.07	0.02	0.03	NA	NA
Hexachlorobenzene	2001	NA	NA	0.30	NA	0.75	0.51	0.32	0.29	0.41	NA	NA	0.03	NA	0.12	0.05	0.01	0.03	0.03
Hexachlorobenzene	2002	NA	NA	NA	0.31	0.43	0.30	0.37	0.30	0.24	NA	NA	NA	0.03	0.04	0.04	0.03	0.02	0.01
Hexachlorobenzene	2003	NA	NA	NA	1.058	0.80	0.42	0.35	0.33	0.29	NA	NA	NA	0.57	0.099	0.022	0.04	0.019	0.012
Mirex	1991	0.45	NA	NA	NA	0.00	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	0.00	NA	NA	NA
Mirex	1992	0.00	NA	NA	NA	0.00	0.00	0.00	NA	NA	0.00	NA	NA	NA	0.00	0.00	0.00	NA	NA
Mirex	1993	NA	NA	NA	NA	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	0.00	0.00	0.00	NA	NA
Mirex	1994	1.98	NA	NA	NA	0.00	0.00	0.00	NA	NA	0.40	NA	NA	NA	0.00	0.00	0.00	NA	NA
Mirex	1995	0.00	NA	NA	NA	0.21	0.07	NA	NA	NA	0.00	NA	NA	NA	0.08	0.03	NA	NA	NA
Mirex	1996	0.78	NA	NA	NA	0.26	0.64	0.70	NA	NA	0.07	NA	NA	NA	0.02	0.06	0.18	NA	NA
Mirex	1997	0.07	NA	NA	NA	0.24	0.50	0.26	NA	NA	0.07	NA	NA	NA	0.15	0.03	0.06	NA	NA
Mirex	1998	0.00	0.00	NA	NA	0.09	0.00	0.00	NA	0.00	0.00	0.00	NA	NA	0.09	0.00	0.00	NA	0.00
Mirex	1999	0.15	NA	NA	NA	0.41	NA	0.05	NA	0.05	0.02	NA	NA	NA	0.01	NA	0.01	NA	0.01
Mirex	2000	NA	NA	0.00	NA	0.00	0.00	0.05	NA	NA	NA	NA	0.00	NA	0.00	0.00	0.05	NA	NA
Mirex	2001	NA	NA	0.00	NA	0.00	0.00	0.00	0.00	0.00	NA	NA	0.00	NA	0.00	0.00	0.00	0.00	0.00
Mirex	2002	NA	NA	NA	0.00	0.00	0.00	0.00	0.00	0.00	NA	NA	NA	0.00	0.00	0.00	0.00	0.00	0.00
Mirex	2003	NA	NA	NA	0	0.15	0.04	0	0	0	NA	NA	NA	0	0.091	0.039	0	0	0
Lindane	1991	0.00	NA	NA	NA	0.00	0.00	NA	NA	NA	0.00	NA	NA	NA	0.00	0.00	NA	NA	NA
Lindane	1992	0.00	NA	NA	NA	0.00	0.16	0.00	NA	NA	0.00	NA	NA	NA	0.00	0.16	0.00	NA	NA
Lindane	1993	NA	NA	NA	NA	2.33	2.22	0.35	NA	NA	NA	NA	NA	NA	0.41	0.57	0.18	NA	NA
Lindane	1994	0.42	NA	NA	NA	0.00	1.56	0.00	NA	NA	0.42	NA	NA	NA	0.00	0.19	0.00	NA	NA
Lindane	1995	0.65	NA	NA	NA	0.88	1.01	NA	NA	NA	0.06	NA	NA	NA	0.04	0.03	NA	NA	NA

Table C-15. Mussel Chemistry Data, 1991 – 2003. (Continued)

		Means									SE								
Parameter	Year	GL	SA	RP	SP	IH	DIL	OSM	LNB	CCB	GL	SA	RP	SP	IH	DIL	OSM	LNB	CCB
Lindane	1996	0.00	NA	NA	NA	0.00	0.00	0.36	NA	NA	0.00	NA	NA	NA	0.00	0.00	0.36	NA	NA
Lindane	1997	0.00	NA	NA	NA	0.00	0.00	0.00	NA	NA	0.00	NA	NA	NA	0.00	0.00	0.00	NA	NA
Lindane	1998	0.42	0.75	NA	NA	0.61	0.75	0.46	NA	0.17	0.01	0.00	NA	NA	0.05	0.03	0.08	NA	0.09
Lindane	1999	0.30	NA	NA	NA	0.28	NA	0.36	NA	0.65	0.02	NA	NA	NA	0.02	NA	0.01	NA	0.04
Lindane	2000	NA	NA	0.00	NA	0.00	0.00	0.08	NA	NA	NA	NA	0.00	NA	0.00	0.00	0.08	NA	NA
Lindane	2001	NA	NA	0.31	NA	0.08	0.22	0.35	0.34	0.33	NA	NA	0.01	NA	0.08	0.06	0.01	0.02	0.05
Lindane	2002	NA	NA	NA	0.51	0.42	0.45	0.72	0.61	0.45	NA	NA	NA	0.05	0.02	0.05	0.04	0.01	0.04
Lindane	2003	NA	NA	NA	0	0	0	0.39	0.54	0.49	NA	NA	NA	0	0	0	0.09	0.054	0.029

Table C-15. Mussel Chemistry Data, 1991 – 2003. (Continued)

		N								
Parameter	**Year**	**GL**	**SA**	**RP**	**SP**	**IH**	**DIL**	**OSM**	**LNB**	**CCB**
Lead	1991	5	NA	NA	NA	5	8	NA	NA	NA
Lead	1992	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	1993	5	NA	NA	NA	NA	5	8	NA	NA
Lead	1994	3	NA	NA	NA	3	4	8	NA	NA
Lead	1995	5	NA	NA	NA	5	5	NA	NA	NA
Lead	1996	NA	5	NA	NA	3	5	5	NA	NA
Lead	1997	NA	5	NA	NA	5	5	5	NA	NA
Lead	1998	NA	5	NA	NA	5	5	8	NA	8
Lead	1999	NA	5	NA	NA	5	NA	8	NA	8
Lead	2000	NA	NA	5	NA	5	5	8	NA	NA
Lead	2001	NA	NA	5	NA	5	5	8	NA	8
Lead	2002	NA	NA	NA	5	5	5	8	4	4
Lead	2003	NA	NA	NA	5	5	5	8	4	4
Mercury	1991	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	1992	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	1993	5	NA	NA	NA	NA	5	8	NA	NA
Mercury	1994	3	NA	NA	NA	3	4	8	NA	NA
Mercury	1995	NA	5	NA	NA	5	5	NA	NA	NA
Mercury	1996	NA	5	NA	NA	3	5	5	NA	NA
Mercury	1997	NA	5	NA	NA	5	5	5	NA	NA
Mercury	1998	NA	5	NA	NA	5	5	8	NA	8
Mercury	1999	NA	5	NA	NA	5	NA	8	NA	8
Mercury	2000	NA	NA	5	NA	5	5	8	NA	NA
Mercury	2001	NA	NA	5	NA	5	5	8	NA	8
Mercury	2002	NA	NA	NA	5	5	5	8	4	4
Mercury	2003	NA	NA	NA	5	5	5	8	4	4
Total DDT	1991	5	NA	NA	NA	5	8	NA	NA	NA
Total DDT	1992	5	NA	NA	NA	5	7	8	NA	NA
Total DDT	1993	NA	NA	NA	NA	4	5	8	NA	NA
Total DDT	1994	3	NA	NA	NA	3	3	7	NA	NA
Total DDT	1995	5	NA	NA	NA	5	5	NA	NA	NA
Total DDT	1996	3	NA	NA	NA	5	5	5	NA	NA
Total DDT	1997	5	NA	NA	NA	5	5	5	NA	NA
Total DDT	1998	4	1	NA	NA	5	5	8	NA	8
Total DDT	1999	5	NA	NA	NA	5	NA	8	NA	8
Total DDT	2000	NA	NA	5	NA	5	5	8	NA	NA
Total DDT	2001	NA	NA	5	NA	5	5	8	8	8
Total DDT	2002	NA	NA	NA	5	5	5	8	4	4
Total DDT	2003	NA	NA	NA	5	5	5	8	4	4
Total PCB	1991	5	NA	NA	NA	5	8	NA	NA	NA
Total PCB	1992	5	NA	NA	NA	5	7	8	NA	NA
Total PCB	1993	NA	NA	NA	NA	4	5	8	NA	NA
Total PCB	1994	3	NA	NA	NA	3	3	7	NA	NA
Total PCB	1995	5	NA	NA	NA	5	5	NA	NA	NA
Total PCB	1996	3	NA	NA	NA	5	5	5	NA	NA
Total PCB	1997	5	NA	NA	NA	5	5	5	NA	NA
Total PCB	1998	5	1	NA	NA	5	5	8	NA	8
Total PCB	1999	5	NA	NA	NA	5	NA	8	NA	8
Total PCB	2000	NA	NA	5	NA	5	5	8	NA	NA
Total PCB	2001	NA	NA	5	NA	5	5	8	8	8

Table C-15. Mussel Chemistry Data, 1991 – 2003. (Continued)

		N								
Parameter	**Year**	**GL**	**SA**	**RP**	**SP**	**IH**	**DIL**	**OSM**	**LNB**	**CCB**
Total PCB	2002	NA	NA	NA	5	5	5	8	4	4
Total PCB	2003	NA	NA	NA	5	5	5	8	4	4
LMW PAH	1991	5	NA	NA	NA	4	8	NA	NA	NA
LMW PAH	1992	5	NA	NA	NA	5	8	7	NA	NA
LMW PAH	1993	6	NA	NA	NA	6	6	8	NA	NA
LMW PAH	1994	3	NA	NA	NA	3	3	7	NA	NA
LMW PAH	1995	5	NA	NA	NA	5	5	NA	NA	NA
LMW PAH	1996	3	NA	NA	NA	5	5	5	NA	NA
LMW PAH	1997	5	NA	NA	NA	5	5	5	NA	NA
LMW PAH	1998	5	1	NA	NA	5	5	8	NA	8
LMW PAH	1999	5	NA	NA	NA	5	NA	8	NA	8
LMW PAH	2000	NA	NA	5	NA	5	4	8	NA	NA
LMW PAH	2001	NA	NA	5	NA	5	5	8	8	8
LMW PAH	2002	NA	NA	NA	4	5	5	8	4	4
LMW PAH	2003	NA	NA	NA	5	5	5	8	4	4
HMW PAH	1991	5	NA	NA	NA	4	8	NA	NA	NA
HMW PAH	1992	5	NA	NA	NA	5	8	7	NA	NA
HMW PAH	1993	6	NA	NA	NA	6	6	8	NA	NA
HMW PAH	1994	3	NA	NA	NA	3	3	7	NA	NA
HMW PAH	1995	5	NA	NA	NA	5	5	NA	NA	NA
HMW PAH	1996	3	NA	NA	NA	5	5	5	NA	NA
HMW PAH	1997	5	NA	NA	NA	5	5	5	NA	NA
HMW PAH	1998	5	1	NA	NA	5	5	8	NA	8
HMW PAH	1999	5	NA	NA	NA	5	NA	8	NA	8
HMW PAH	2000	NA	NA	5	NA	5	4	8	NA	NA
HMW PAH	2001	NA	NA	5	NA	5	5	8	8	8
HMW PAH	2002	NA	NA	NA	4	5	5	8	4	4
HMW PAH	2003	NA	NA	NA	5	5	5	8	4	4
Total CHLOR	1991	5	NA	NA	NA	5	8	NA	NA	NA
Total CHLOR	1992	5	NA	NA	NA	5	7	8	NA	NA
Total CHLOR	1993	NA	NA	NA	NA	4	5	8	NA	NA
Total CHLOR	1994	3	NA	NA	NA	3	3	7	NA	NA
Total CHLOR	1995	5	NA	NA	NA	5	5	NA	NA	NA
Total CHLOR	1996	3	NA	NA	NA	5	5	5	NA	NA
Total CHLOR	1997	5	NA	NA	NA	5	5	5	NA	NA
Total CHLOR	1998	5	1	NA	NA	5	5	8	NA	8
Total CHLOR	1999	5	NA	NA	NA	5	NA	8	NA	8
Total CHLOR	2000	NA	NA	5	NA	5	5	8	NA	NA
Total CHLOR	2001	NA	NA	5	NA	5	5	8	8	8
Total CHLOR	2002	NA	NA	NA	5	5	5	8	4	4
Total CHLOR	2003	NA	NA	NA	5	5	5	8	4	4
Aldrin	1991	5	NA	NA	NA	5	8	NA	NA	NA
Aldrin	1992	5	NA	NA	NA	5	7	8	NA	NA
Aldrin	1993	NA	NA	NA	NA	4	5	8	NA	NA
Aldrin	1994	3	NA	NA	NA	3	3	7	NA	NA
Aldrin	1995	5	NA	NA	NA	5	5	NA	NA	NA
Aldrin	1996	3	NA	NA	NA	5	5	5	NA	NA
Aldrin	1997	5	NA	NA	NA	5	5	5	NA	NA
Aldrin	1998	5	1	NA	NA	5	5	8	NA	8
Aldrin	1999	5	NA	NA	NA	5	NA	8	NA	8

Table C-15. Mussel Chemistry Data, 1991 – 2003. (Continued)

		N								
Parameter	**Year**	**GL**	**SA**	**RP**	**SP**	**IH**	**DIL**	**OSM**	**LNB**	**CCB**
Aldrin	2000	NA	NA	5	NA	5	5	8	NA	NA
Aldrin	2001	NA	NA	5	NA	5	5	8	8	8
Aldrin	2002	NA	NA	NA	5	5	5	8	4	4
Aldrin	2003	NA	NA	NA	5	5	5	8	4	4
Dieldrin	1991	5	NA	NA	NA	5	8	NA	NA	NA
Dieldrin	1992	5	NA	NA	NA	5	7	8	NA	NA
Dieldrin	1993	NA	NA	NA	NA	4	5	8	NA	NA
Dieldrin	1994	3	NA	NA	NA	3	3	7	NA	NA
Dieldrin	1995	5	NA	NA	NA	5	5	NA	NA	NA
Dieldrin	1996	3	NA	NA	NA	5	5	5	NA	NA
Dieldrin	1997	5	NA	NA	NA	5	5	5	NA	NA
Dieldrin	1998	5	1	NA	NA	5	5	8	NA	8
Dieldrin	1999	5	NA	NA	NA	5	NA	8	NA	8
Dieldrin	2000	NA	NA	5	NA	5	5	8	NA	NA
Dieldrin	2001	NA	NA	5	NA	5	5	8	8	8
Dieldrin	2002	NA	NA	NA	5	5	5	8	4	4
Dieldrin	2003	NA	NA	NA	5	5	5	8	4	4
Endrin	1991	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin	1992	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin	1993	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin	1994	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin	1995	5	NA	NA	NA	5	5	NA	NA	NA
Endrin	1996	3	NA	NA	NA	5	5	5	NA	NA
Endrin	1997	5	NA	NA	NA	5	5	5	NA	NA
Endrin	1998	5	1	NA	NA	5	5	8	NA	8
Endrin	1999	5	NA	NA	NA	5	NA	8	NA	8
Endrin	2000	NA	NA	5	NA	5	5	8	NA	NA
Endrin	2001	NA	NA	5	NA	5	5	8	8	8
Endrin	2002	NA	NA	NA	5	5	5	8	4	4
Endrin	2003	NA	NA	NA	5	5	5	8	4	4
Hexachlorobenzene	1991	5	NA	NA	NA	5	8	NA	NA	NA
Hexachlorobenzene	1992	5	NA	NA	NA	5	7	8	NA	NA
Hexachlorobenzene	1993	NA	NA	NA	NA	4	5	8	NA	NA
Hexachlorobenzene	1994	3	NA	NA	NA	3	3	7	NA	NA
Hexachlorobenzene	1995	5	NA	NA	NA	5	5	NA	NA	NA
Hexachlorobenzene	1996	3	NA	NA	NA	5	5	5	NA	NA
Hexachlorobenzene	1997	5	NA	NA	NA	5	5	5	NA	NA
Hexachlorobenzene	1998	5	1	NA	NA	5	5	8	NA	8
Hexachlorobenzene	1999	5	NA	NA	NA	5	NA	8	NA	8
Hexachlorobenzene	2000	NA	NA	5	NA	5	5	8	NA	NA
Hexachlorobenzene	2001	NA	NA	5	NA	5	5	8	8	8
Hexachlorobenzene	2002	NA	NA	NA	5	5	5	8	4	4
Hexachlorobenzene	2003	NA	NA	NA	5	5	5	8	4	4
Mirex	1991	5	NA	NA	NA	5	8	NA	NA	NA
Mirex	1992	5	NA	NA	NA	5	7	8	NA	NA
Mirex	1993	NA	NA	NA	NA	4	5	8	NA	NA
Mirex	1994	3	NA	NA	NA	3	3	7	NA	NA
Mirex	1995	5	NA	NA	NA	5	5	NA	NA	NA
Mirex	1996	3	NA	NA	NA	5	5	5	NA	NA
Mirex	1997	5	NA	NA	NA	5	5	5	NA	NA

Table C-15. Mussel Chemistry Data, 1991 – 2003.
(Continued)

		N								
Parameter	**Year**	**GL**	**SA**	**RP**	**SP**	**IH**	**DIL**	**OSM**	**LNB**	**CCB**
Mirex	1998	5	1	NA	NA	5	5	8	NA	8
Mirex	1999	5	NA	NA	NA	5	NA	8	NA	8
Mirex	2000	NA	NA	5	NA	5	5	8	NA	NA
Mirex	2001	NA	NA	5	NA	5	5	8	8	8
Mirex	2002	NA	NA	NA	5	5	5	8	4	4
Mirex	2003	NA	NA	NA	5	5	5	8	4	4
Lindane	1991	5	NA	NA	NA	5	8	NA	NA	NA
Lindane	1992	5	NA	NA	NA	5	7	8	NA	NA
Lindane	1993	NA	NA	NA	NA	4	5	8	NA	NA
Lindane	1994	3	NA	NA	NA	3	3	7	NA	NA
Lindane	1995	5	NA	NA	NA	5	5	NA	NA	NA
Lindane	1996	3	NA	NA	NA	5	5	5	NA	NA
Lindane	1997	5	NA	NA	NA	5	5	5	NA	NA
Lindane	1998	5	1	NA	NA	5	5	8	NA	8
Lindane	1999	5	NA	NA	NA	5	NA	8	NA	8
Lindane	2000	NA	NA	5	NA	5	5	8	NA	NA
Lindane	2001	NA	NA	5	NA	5	5	8	8	8
Lindane	2002	NA	NA	NA	5	5	5	8	4	4
Lindane	2003	NA	NA	NA	5	5	5	8	4	4

APPENDIX D

Additional Figures of Contaminant Concentrations

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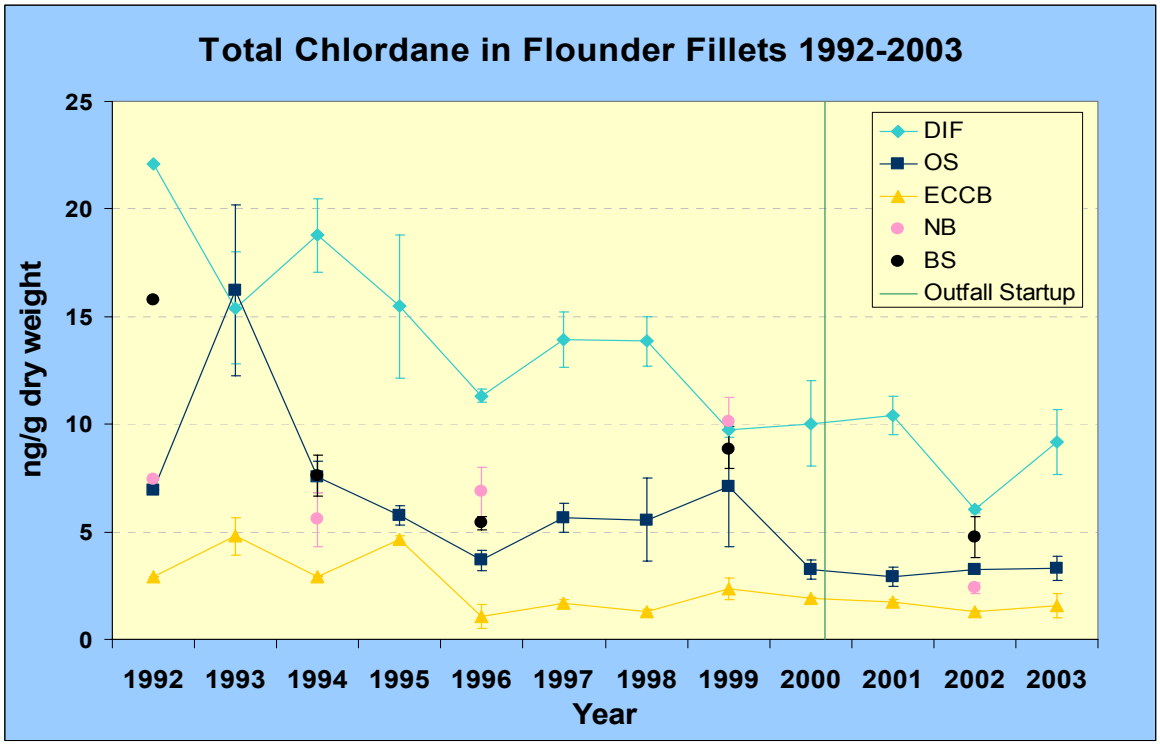


Figure D - 1. Total Chlordane in Flounder Fillets at the Five Collection Sites from 1992-2003.

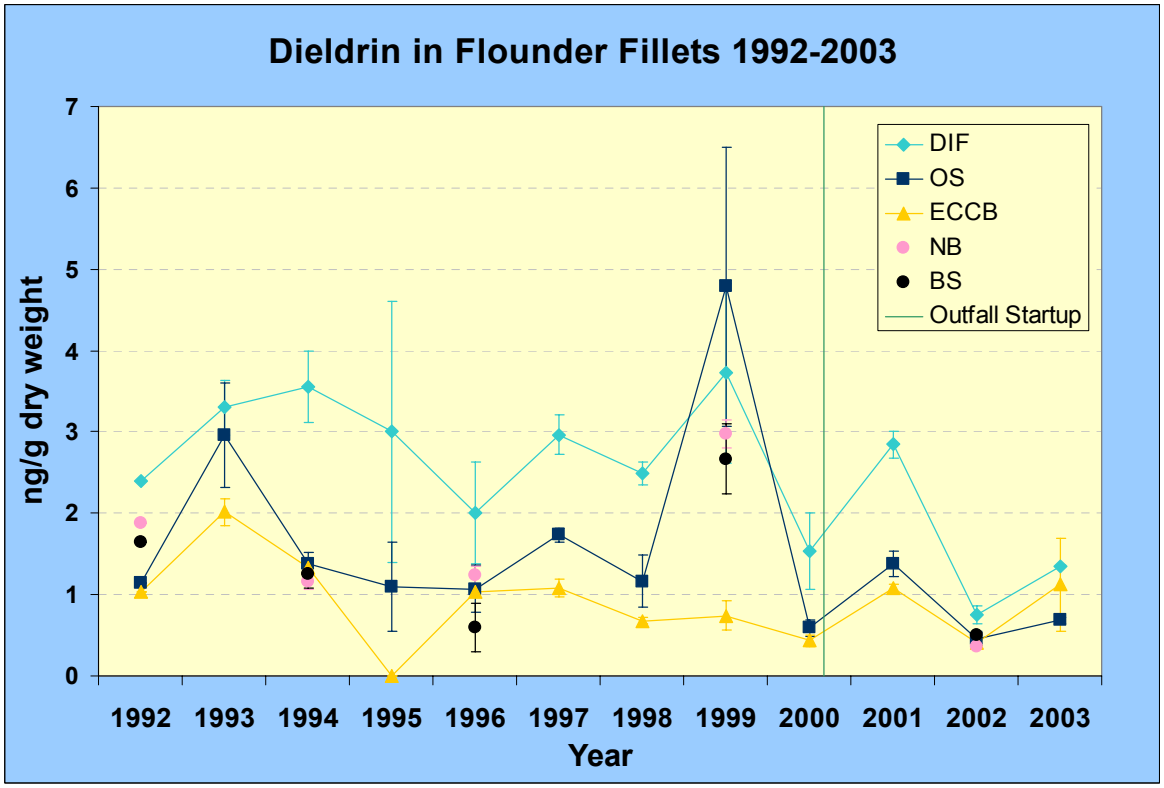
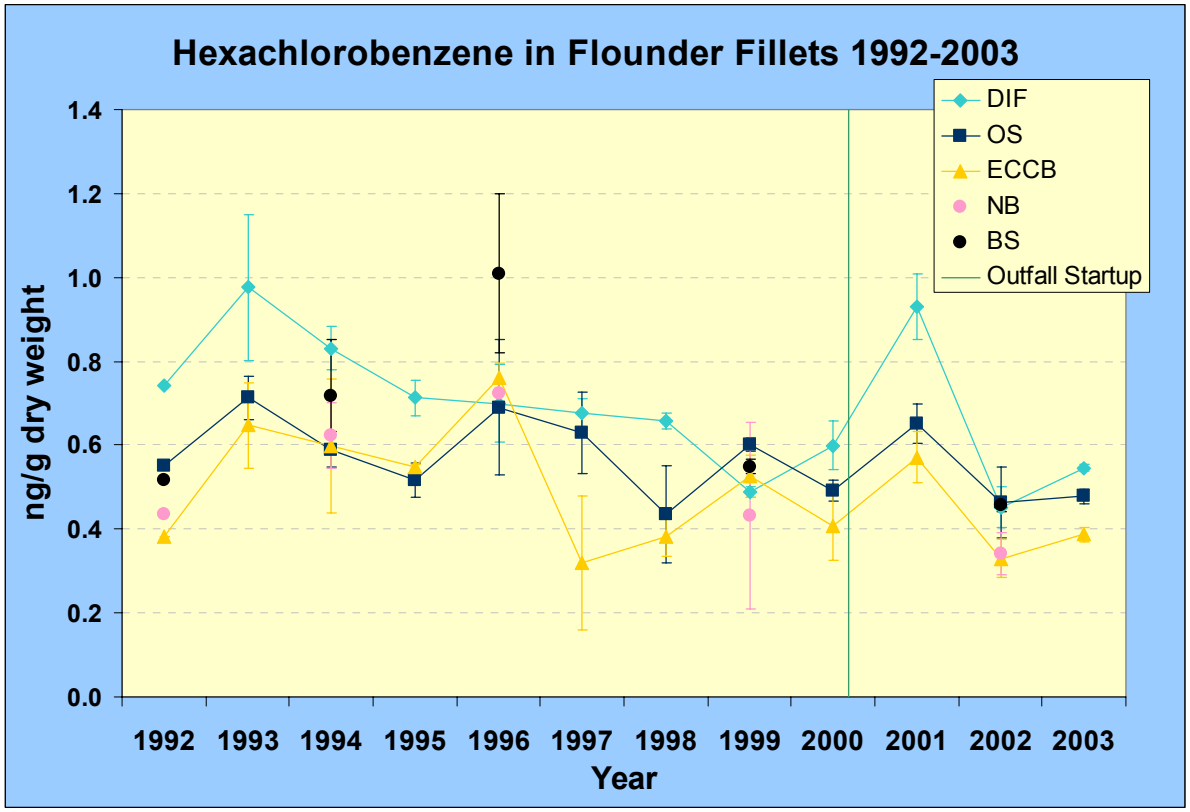


Figure D - 2. Dieldrin in Flounder Fillets at the Five Collection Sites from 1992-2003.



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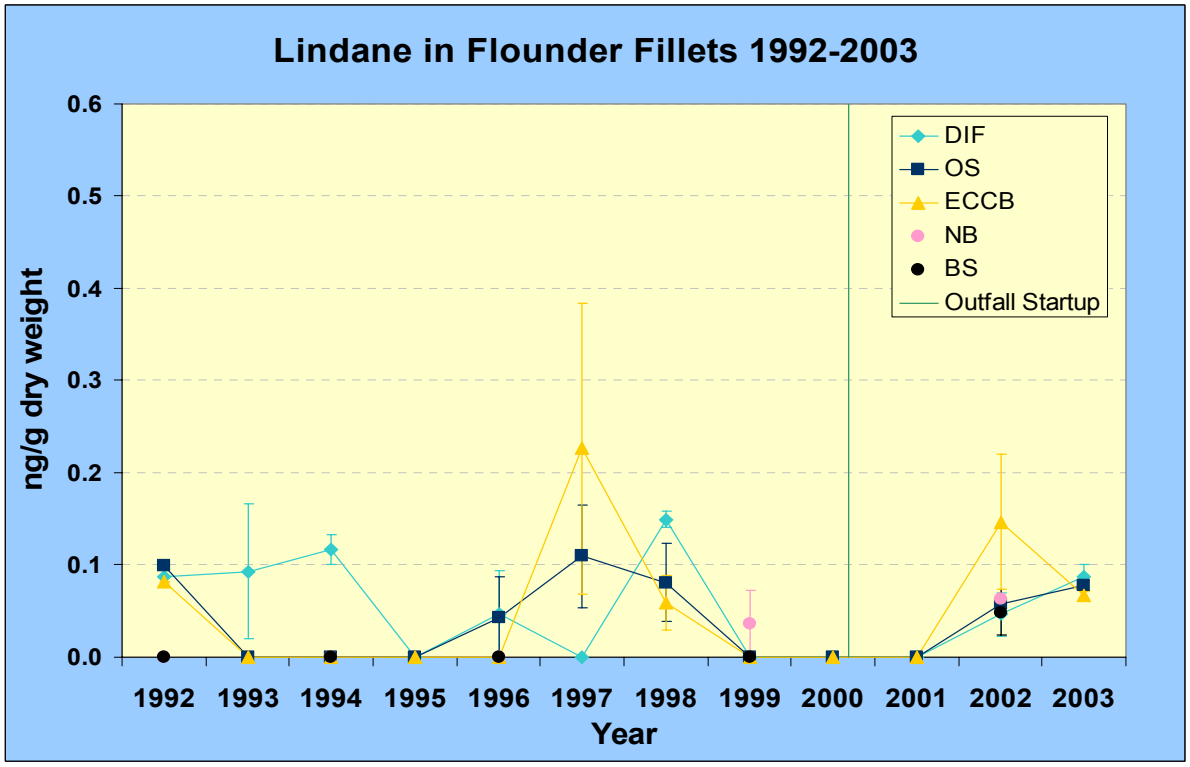

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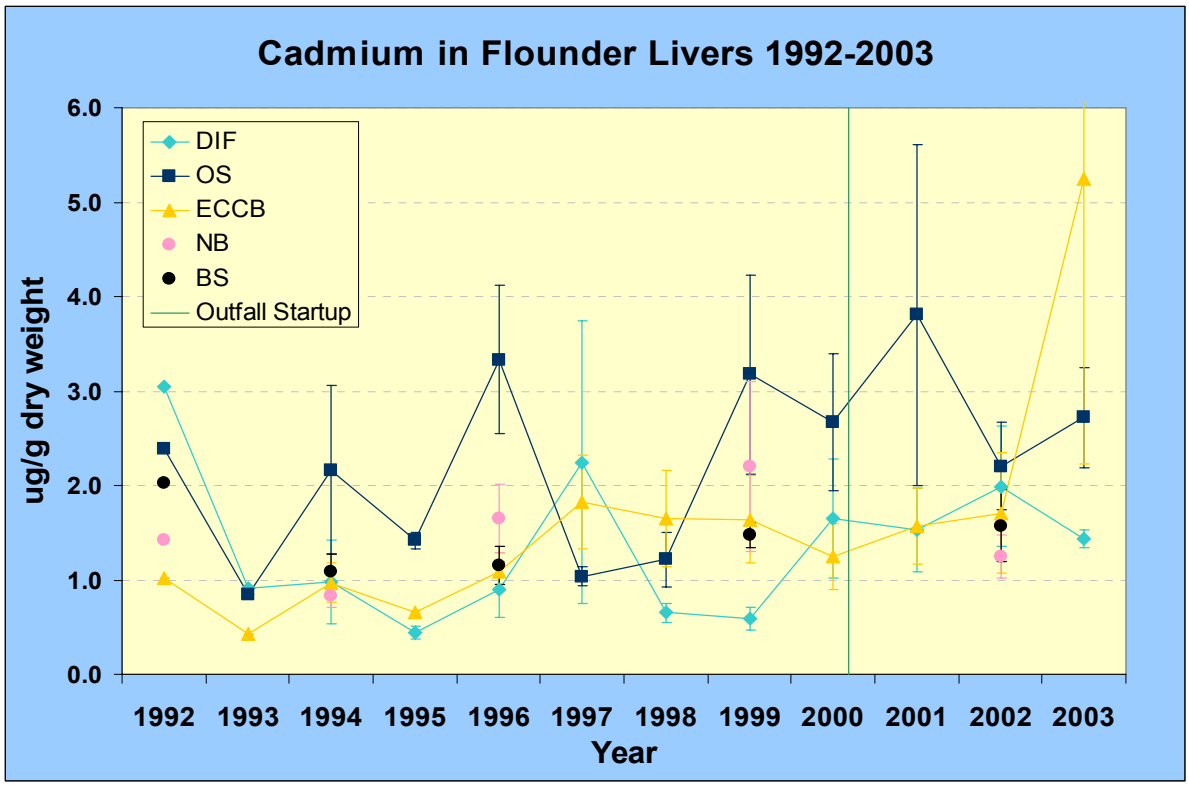


Figure D - 5. Cadmium in Flounder Livers at the Five Collection Sites from 1992-2003.

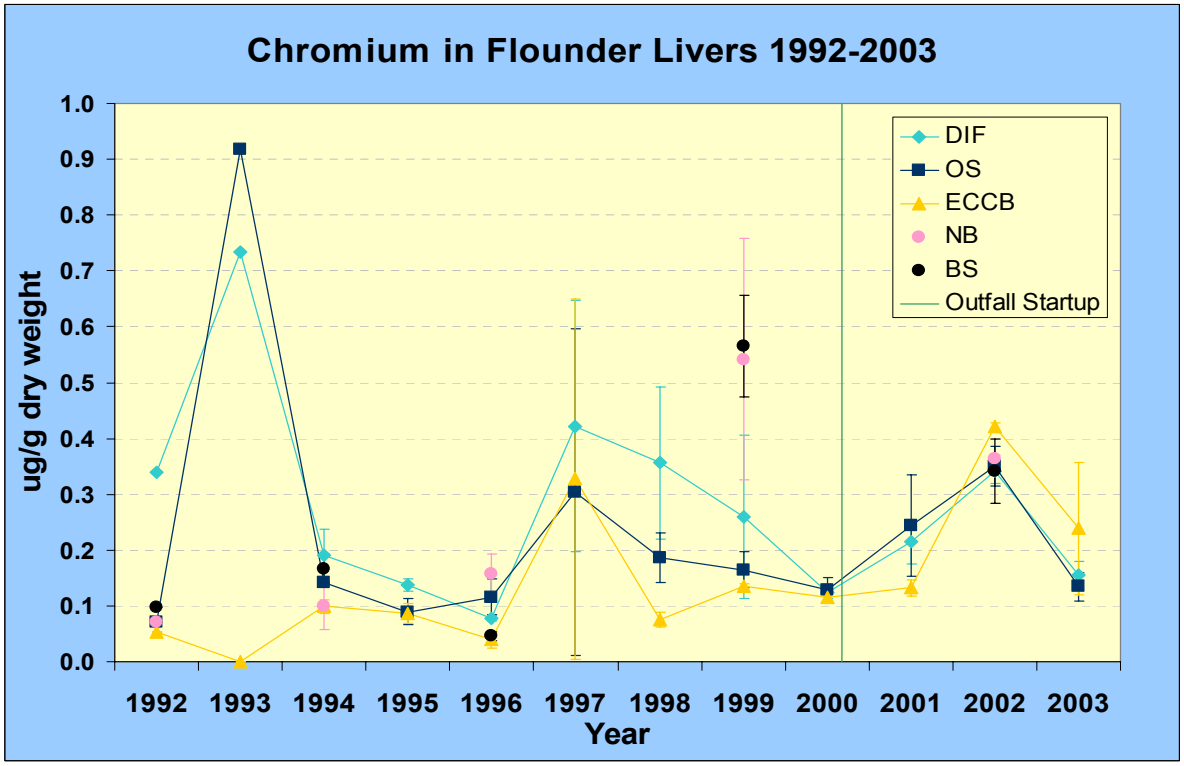
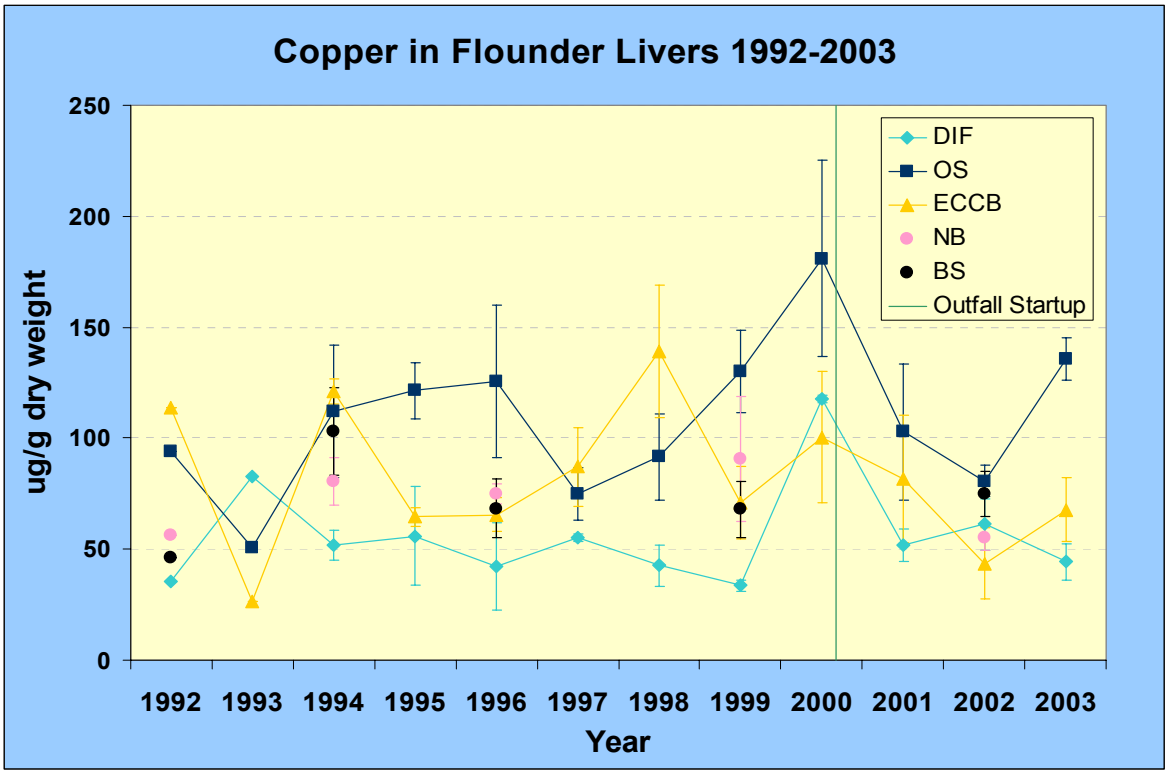


Figure D - 6. Chromium in Flounder Livers at the Five Collection Sites from 1992-2003.



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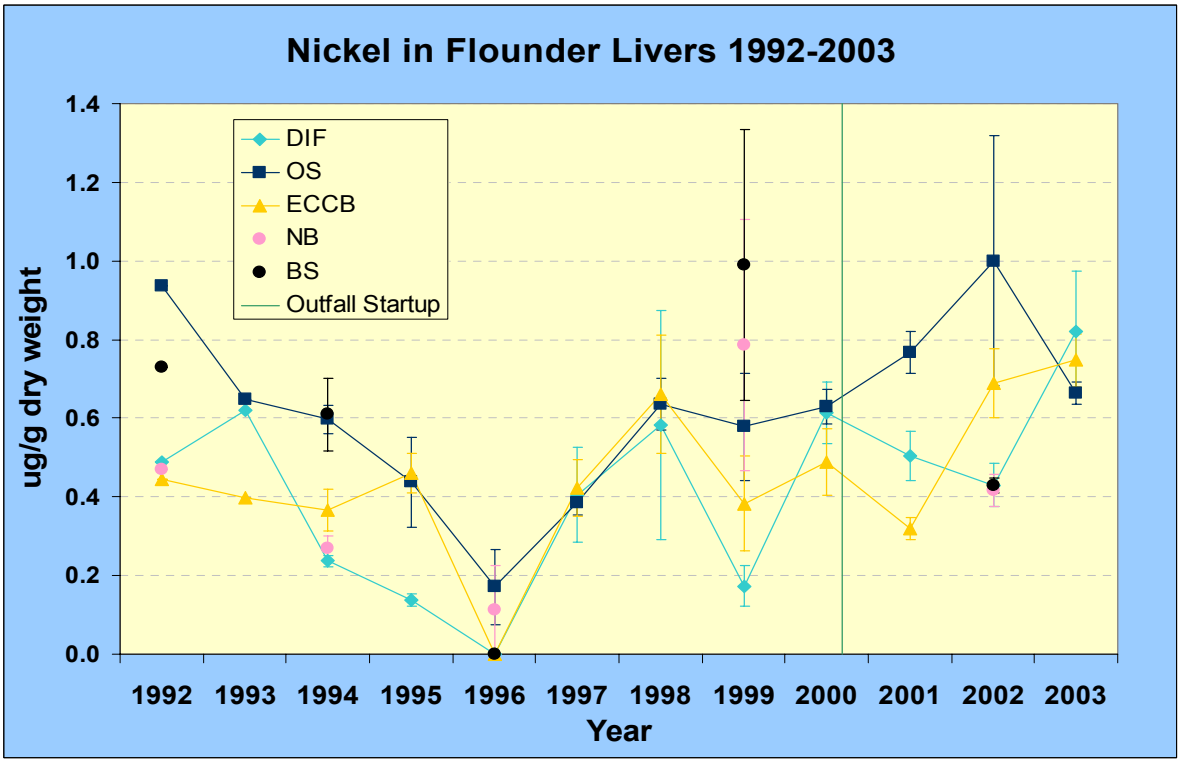

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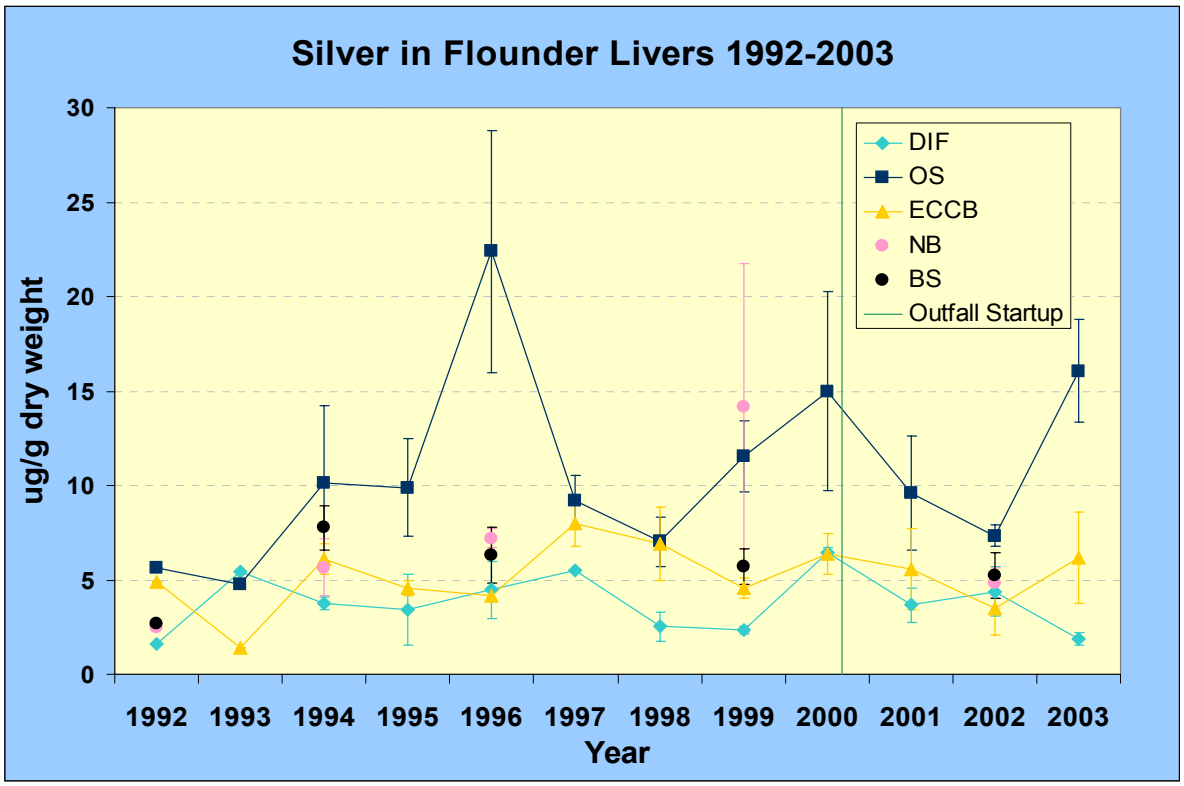

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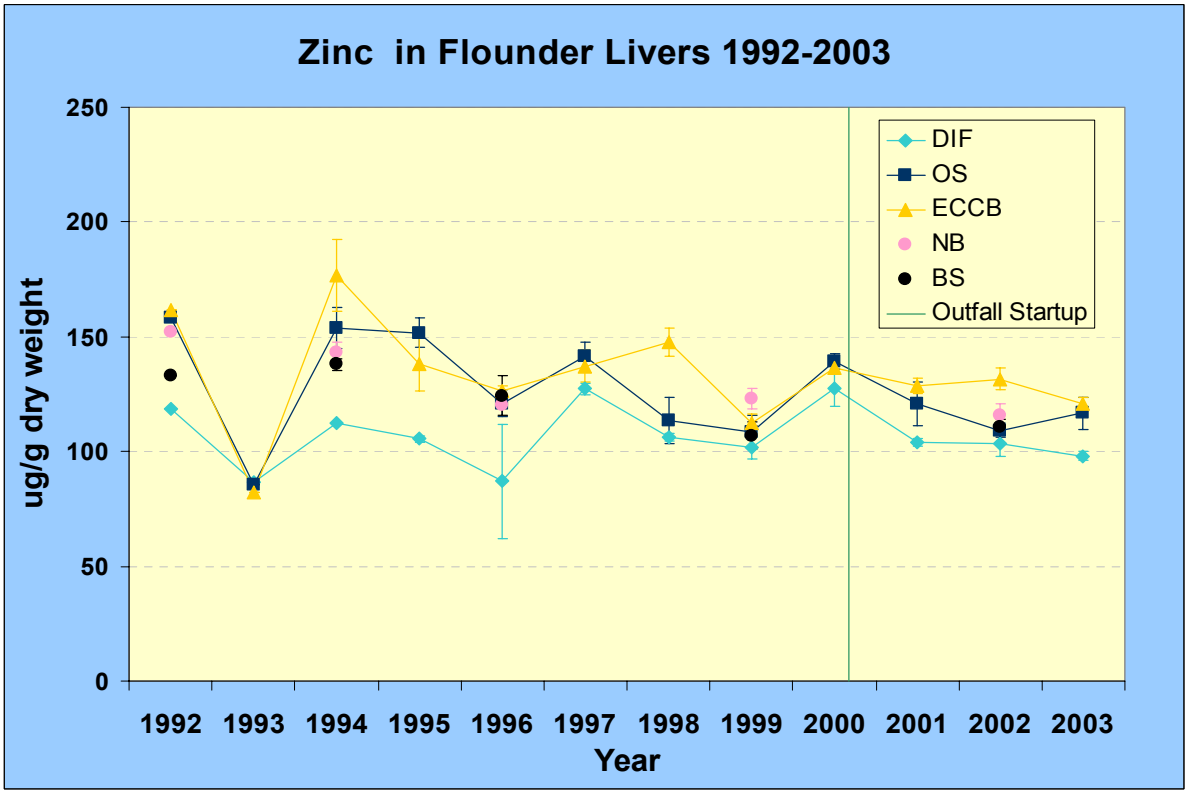

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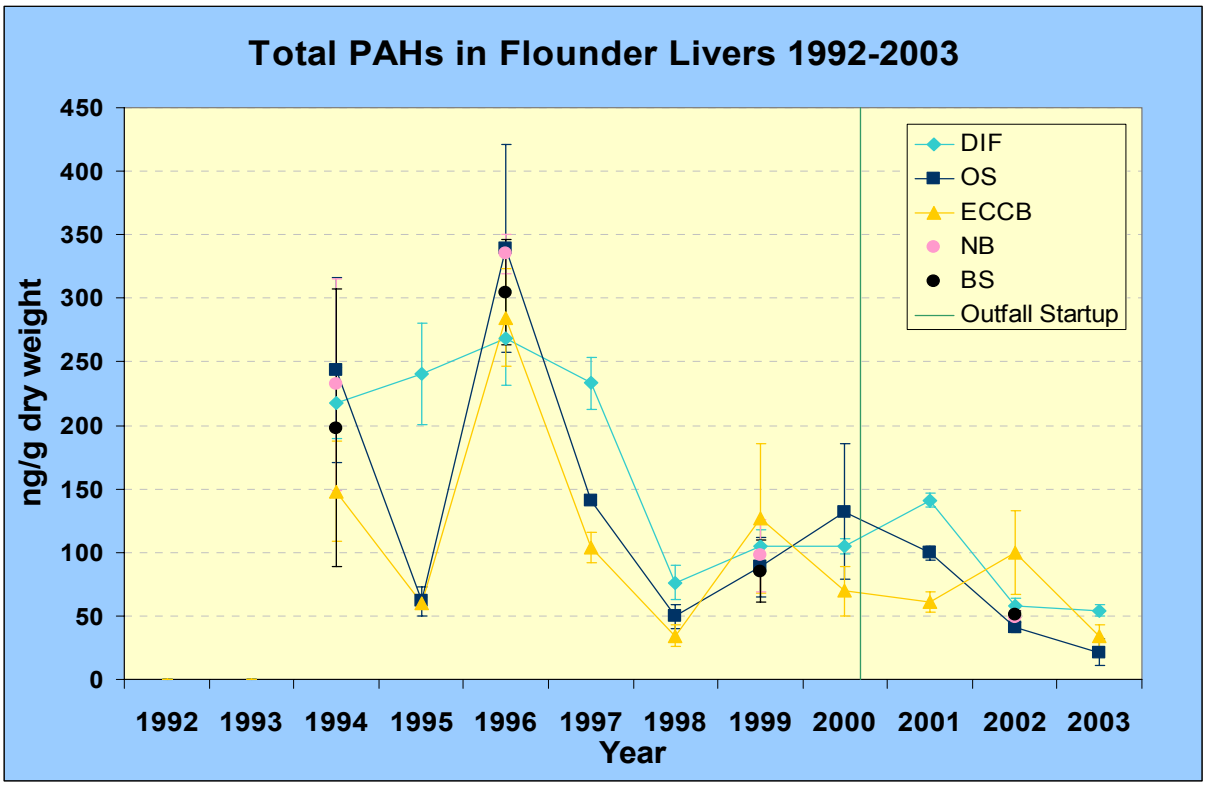

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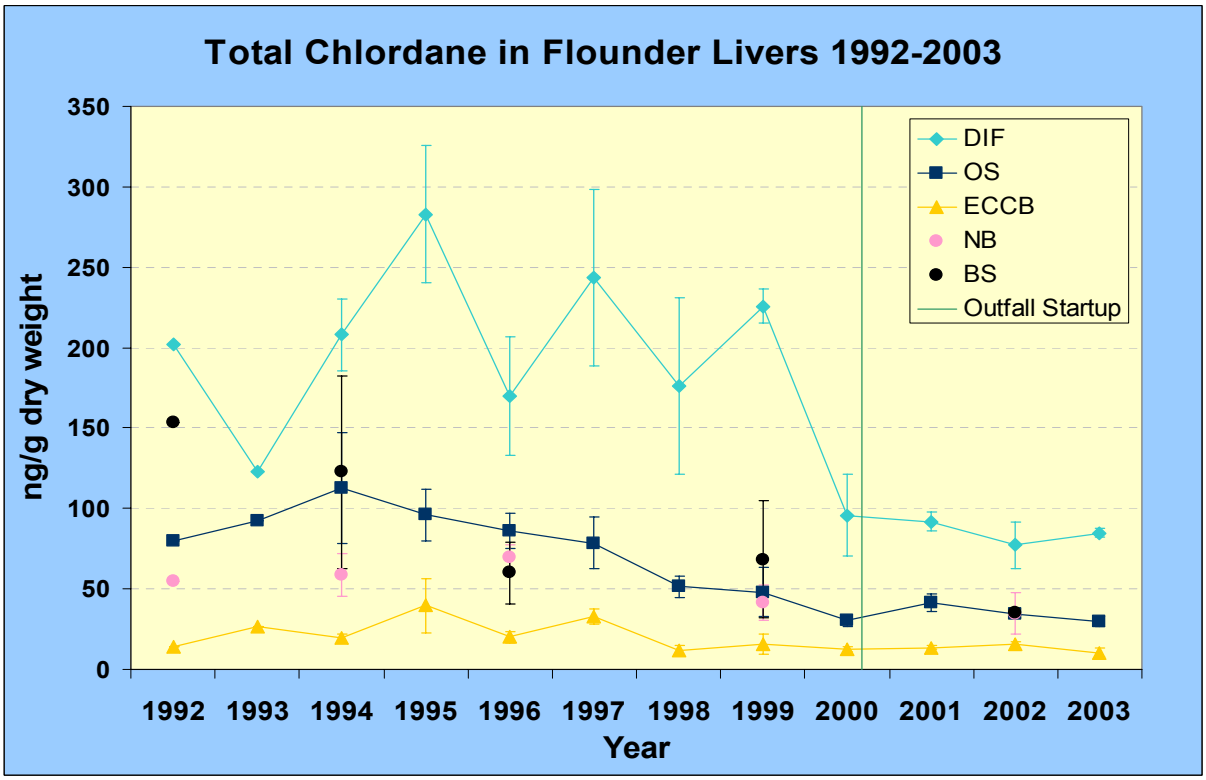
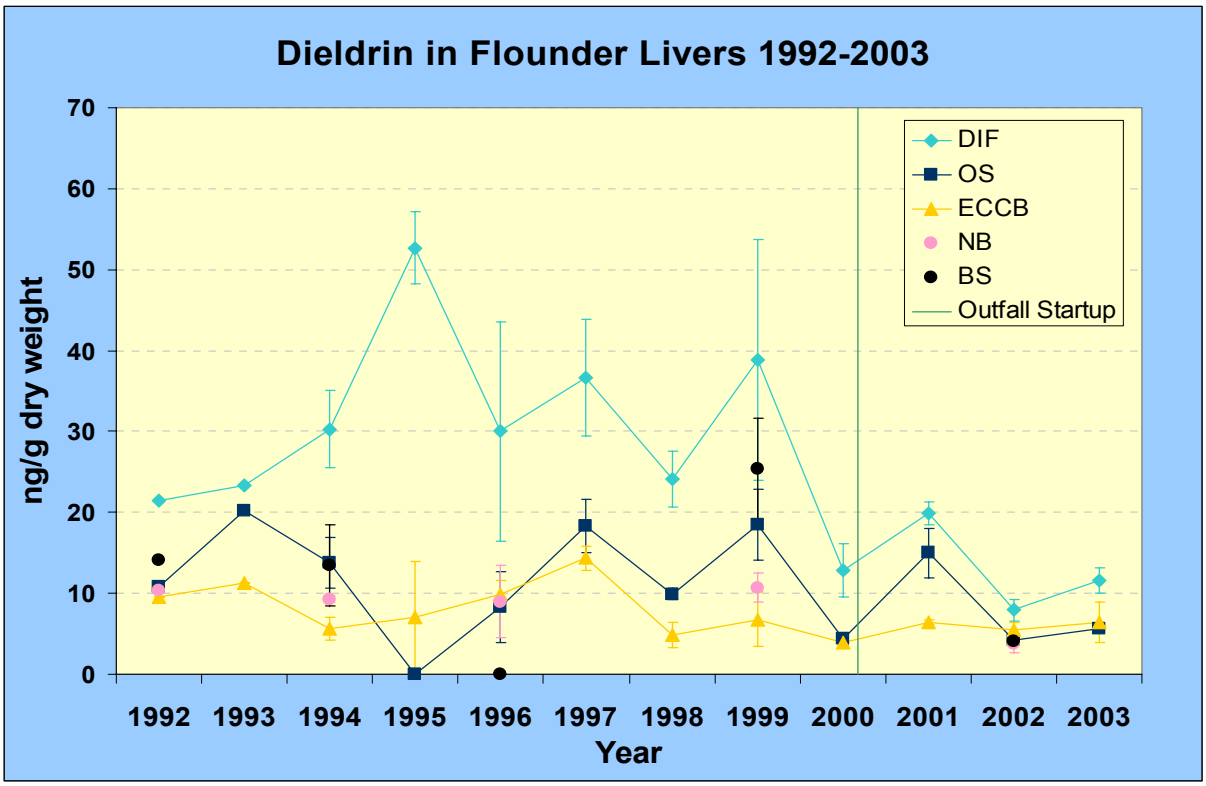


Figure D - 12. Total Chlordane in Flounder Livers at the Five Collection Sites from 1992-2003.



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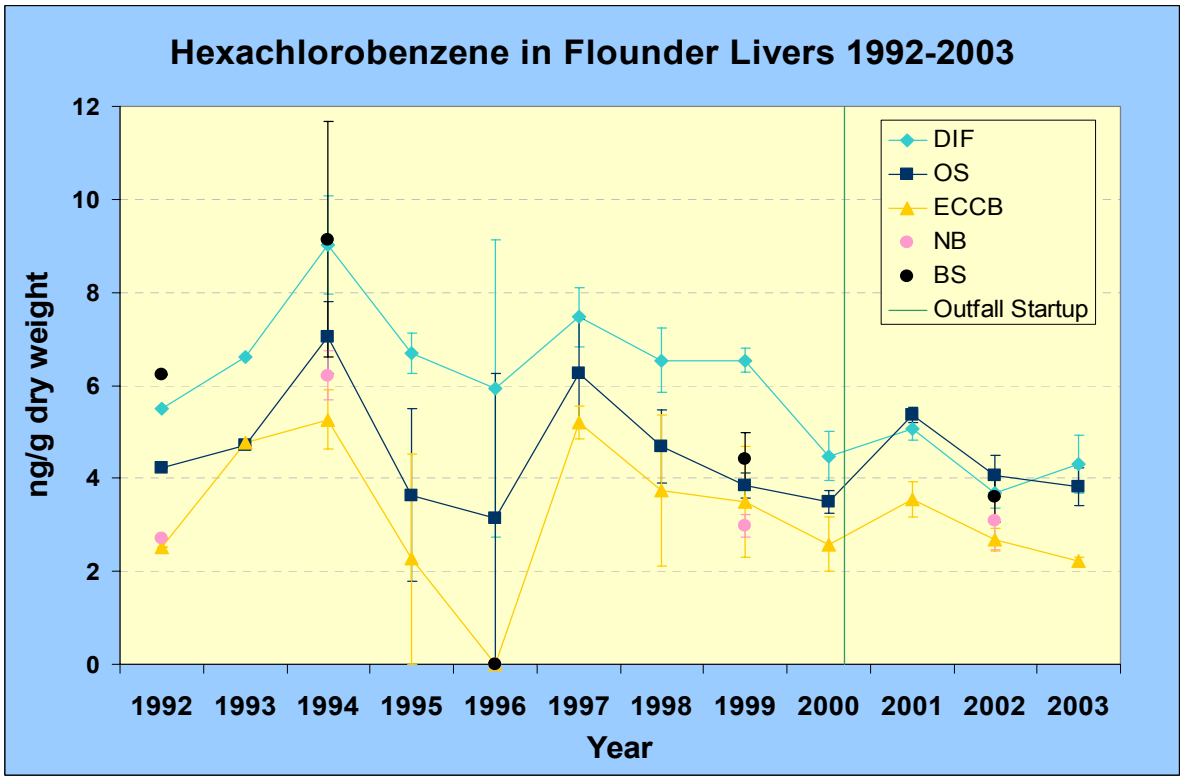

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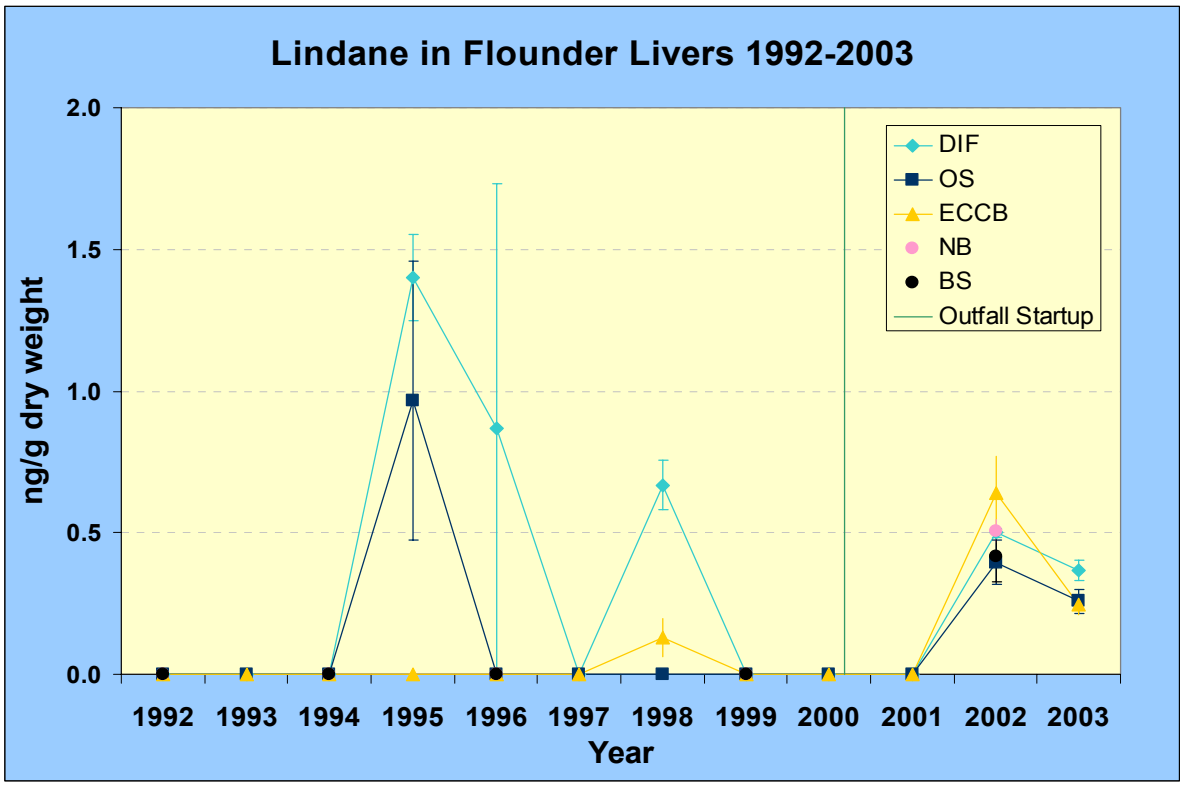

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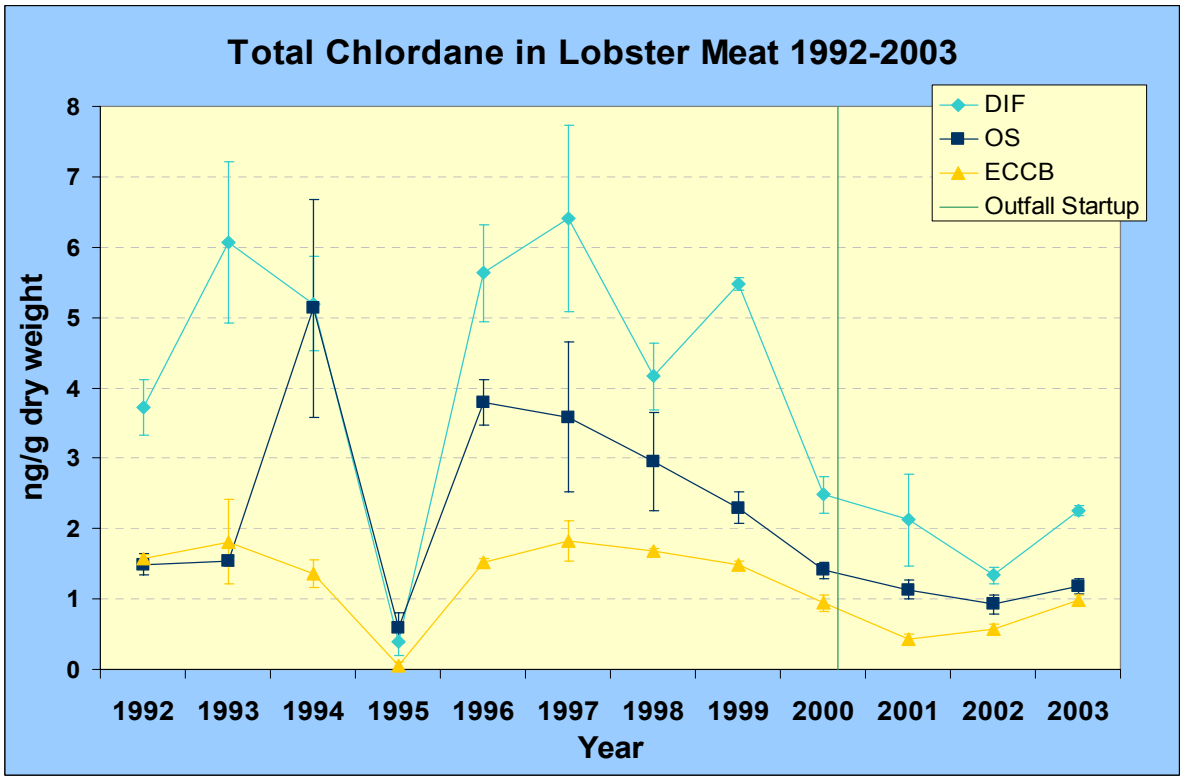
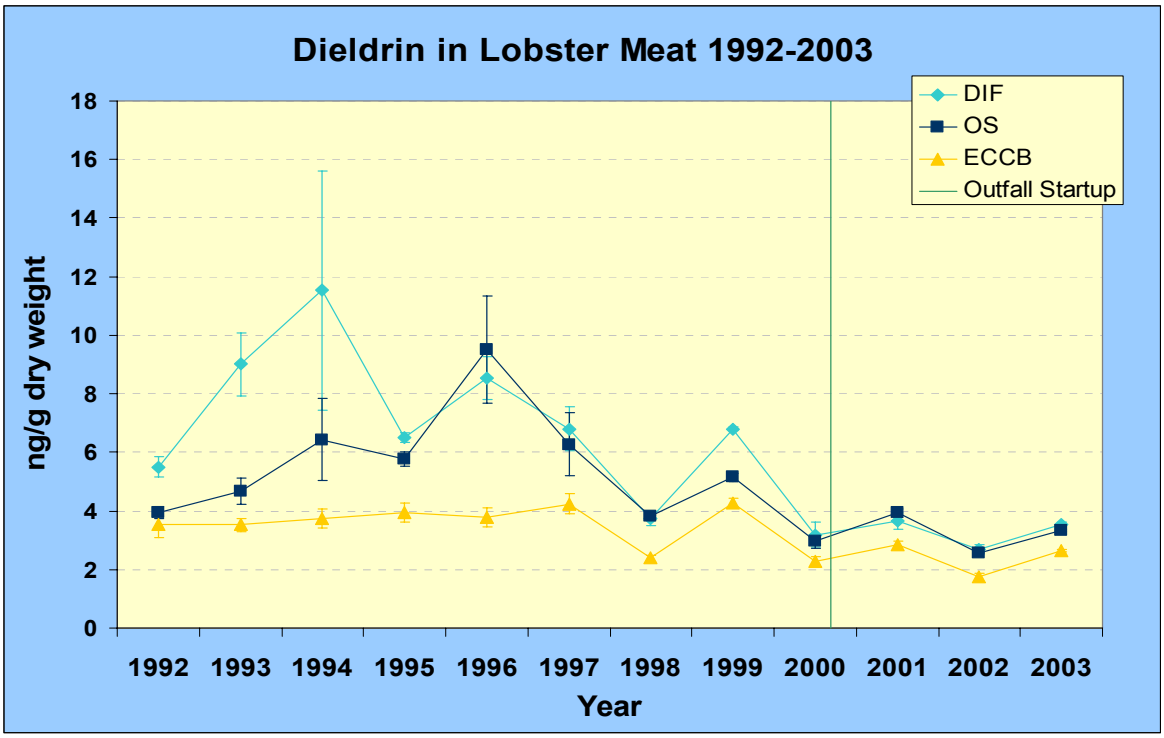


Figure D - 16. Total Chlordane in Lobster Meat at DIF, OS, and ECCB from 1992-2003.



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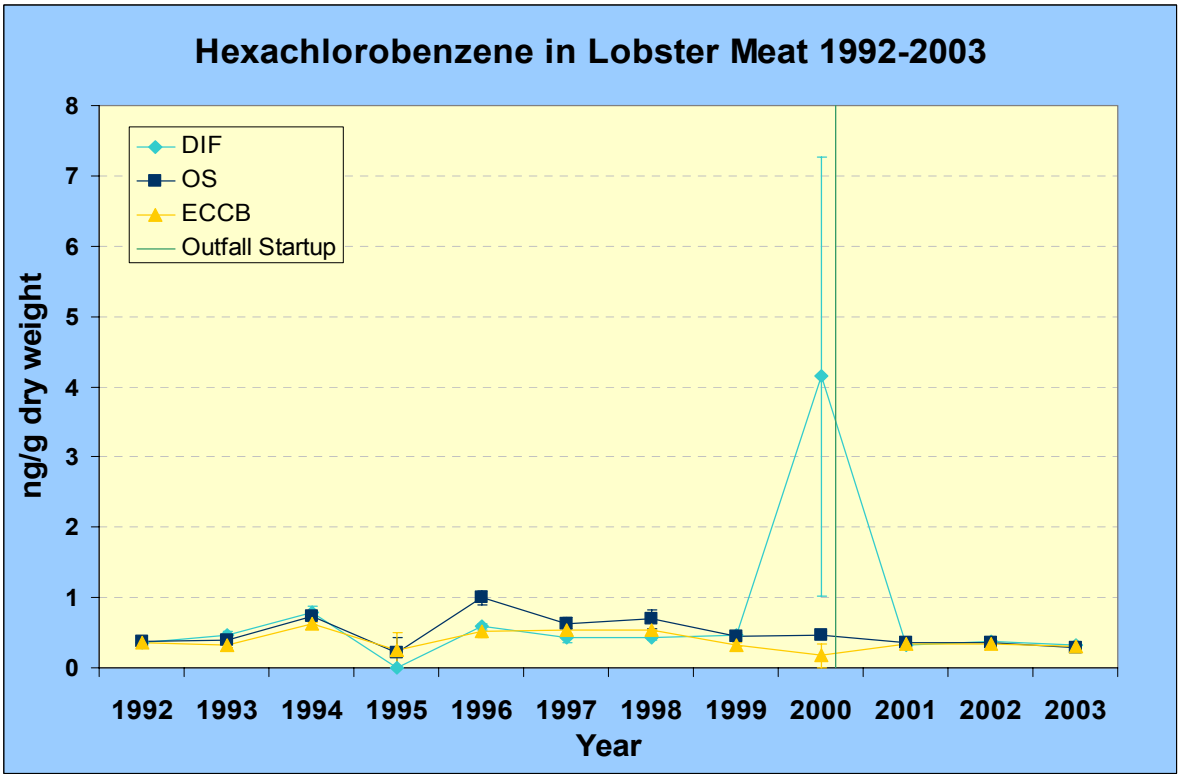


Figure D - 18. Hexachlorobenzene in Lobster Meat at DIF, OS, and ECCB from 1992-2003.

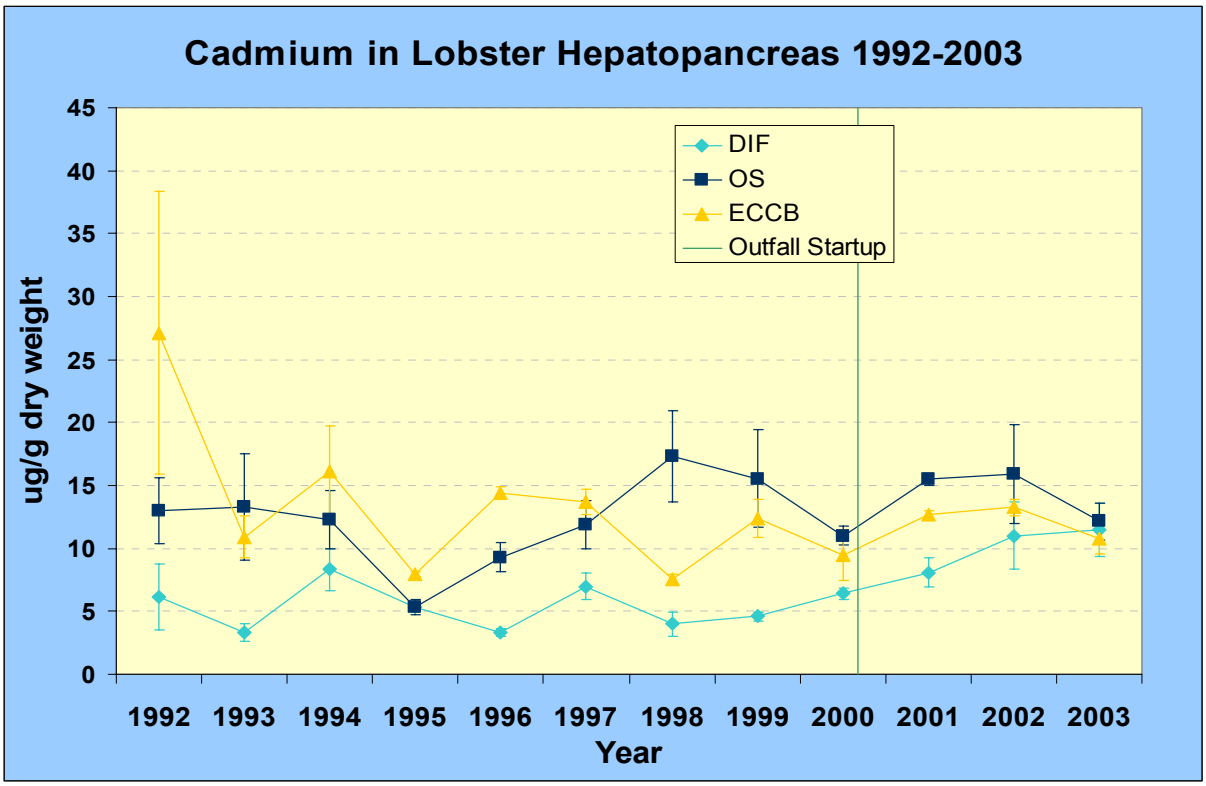


Figure D - 19. Cadmium in Lobster Hepatopancreas at DIF, OS, and ECCB from 1992-2003.

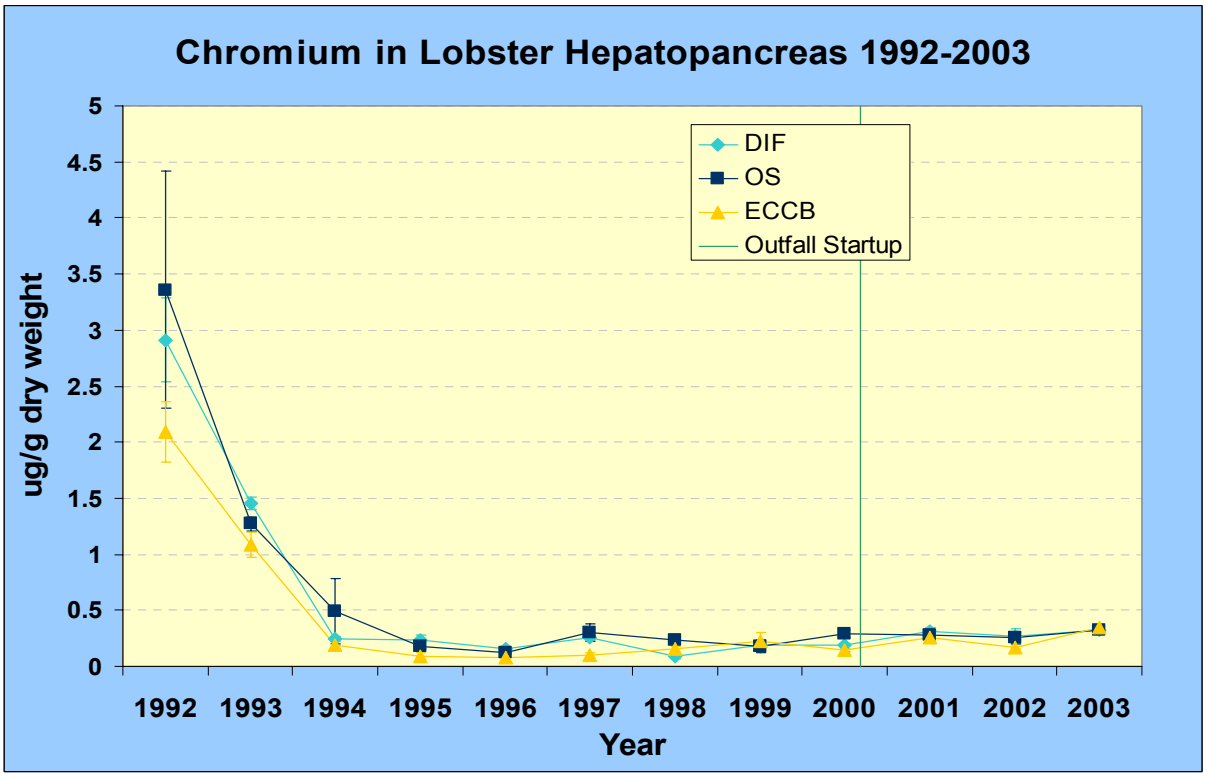


Figure D - 20. Chromium in Lobster Hepatopancreas at DIF, OS, and ECCB from 1992-2003.

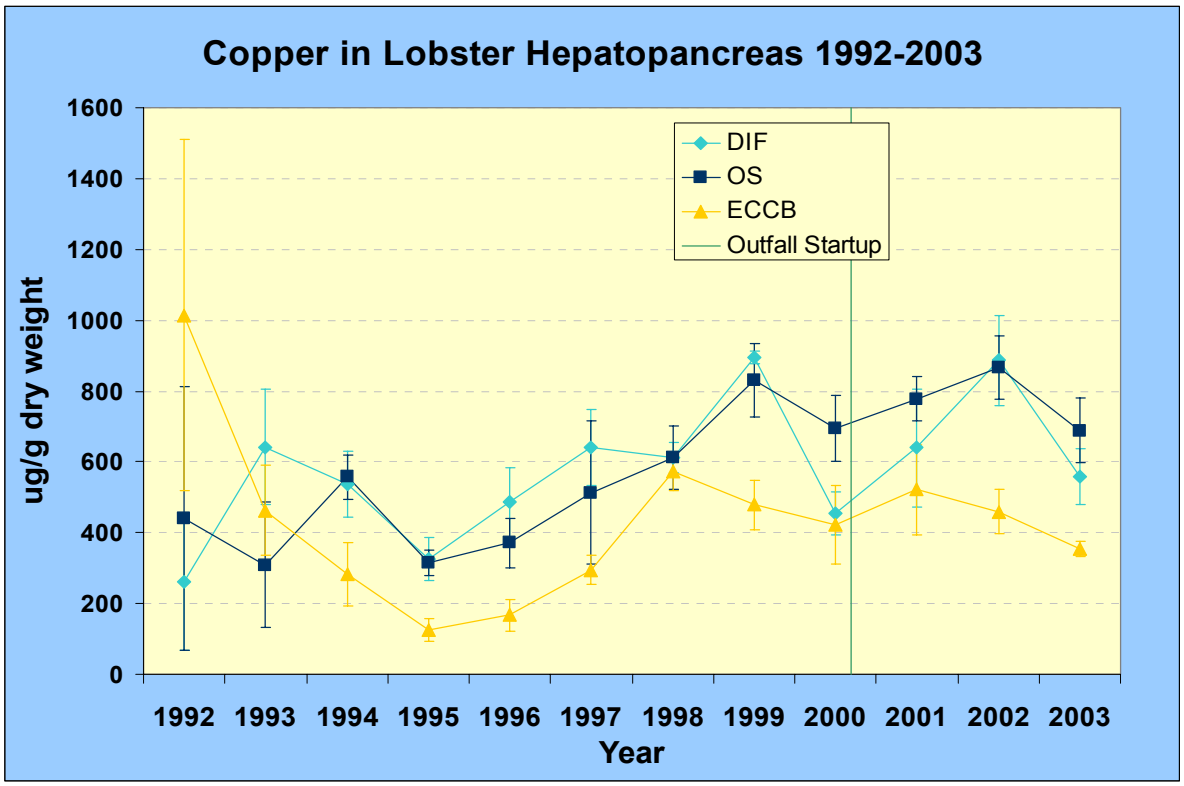


Figure D - 21. Copper in Lobster Hepatopancreas at DIF, OS, and ECCB from 1992-2003.

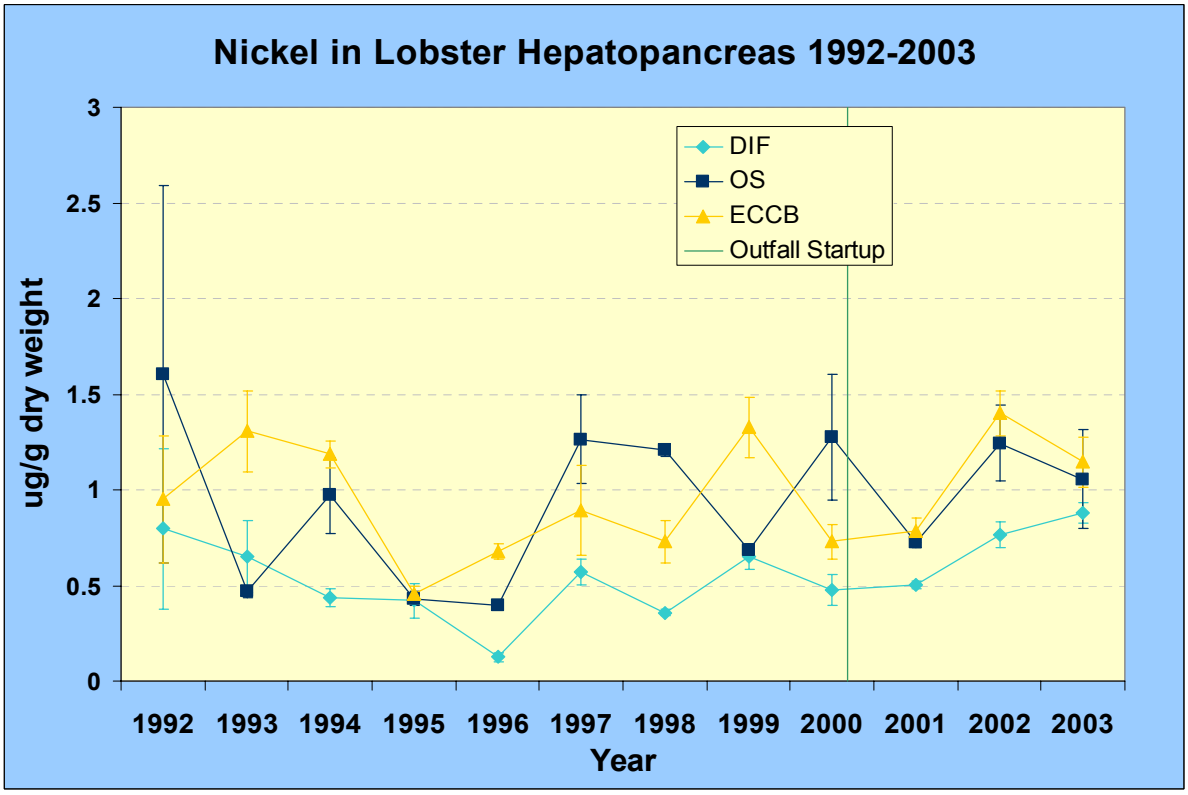


Figure D - 22. Nickel in Lobster Hepatopancreas at DIF, OS, and ECCB from 1992-2003.

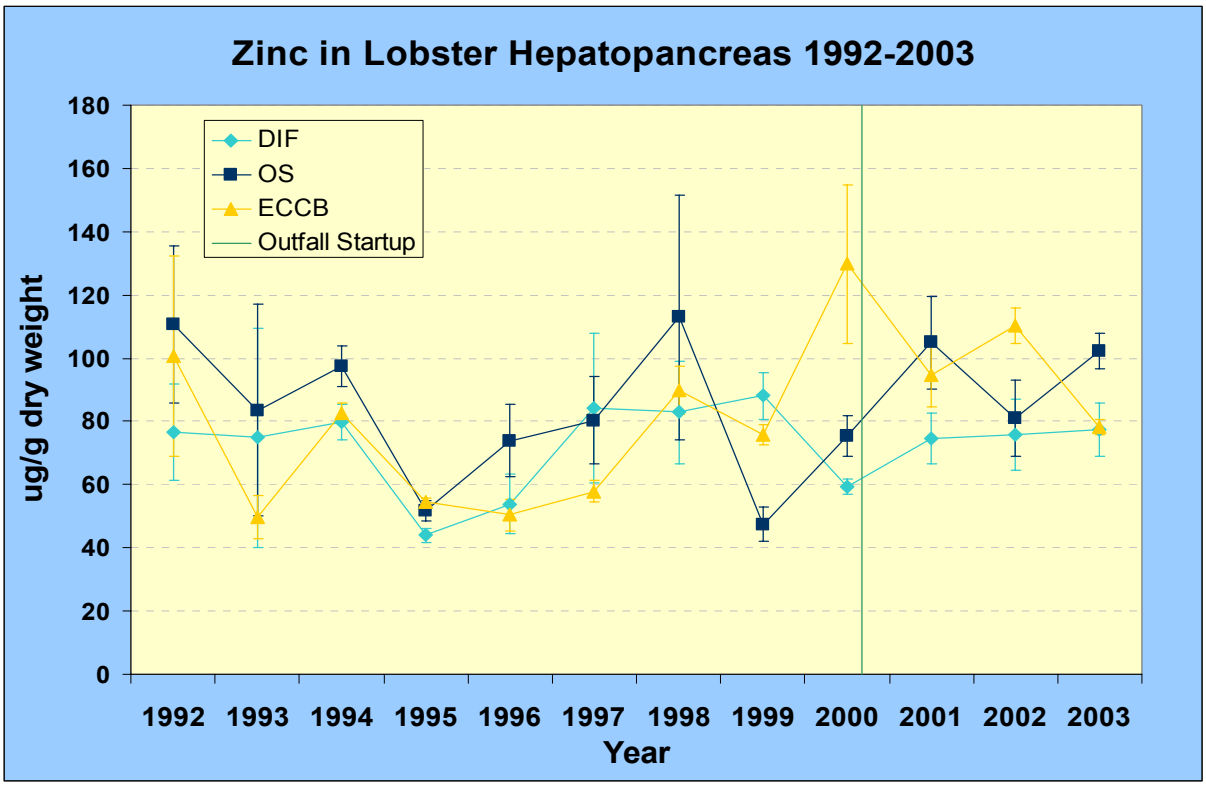


Figure D - 23. Zinc in Lobster Hepatopancreas at DIF, OS, and ECCB from 1992-2003.

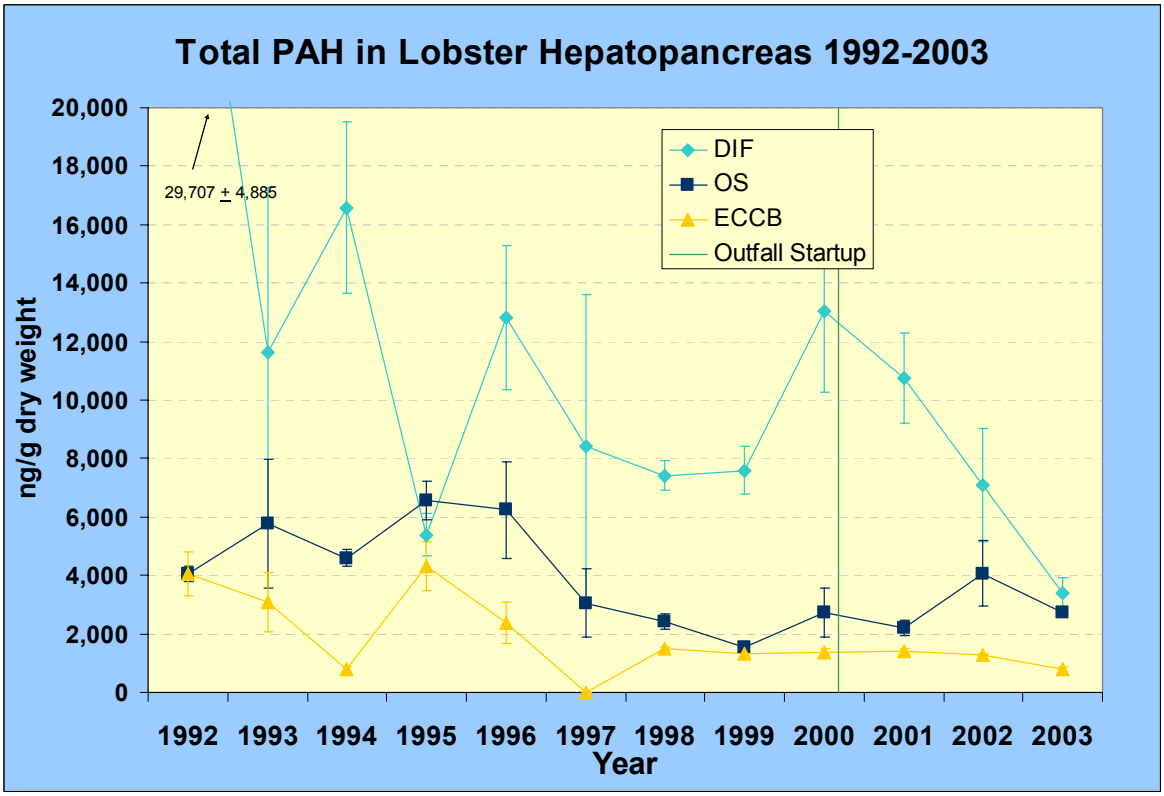


Figure D - 24. Total PAH in Lobster Hepatopancreas at DIF, OS, and ECCB from 1992-2003.

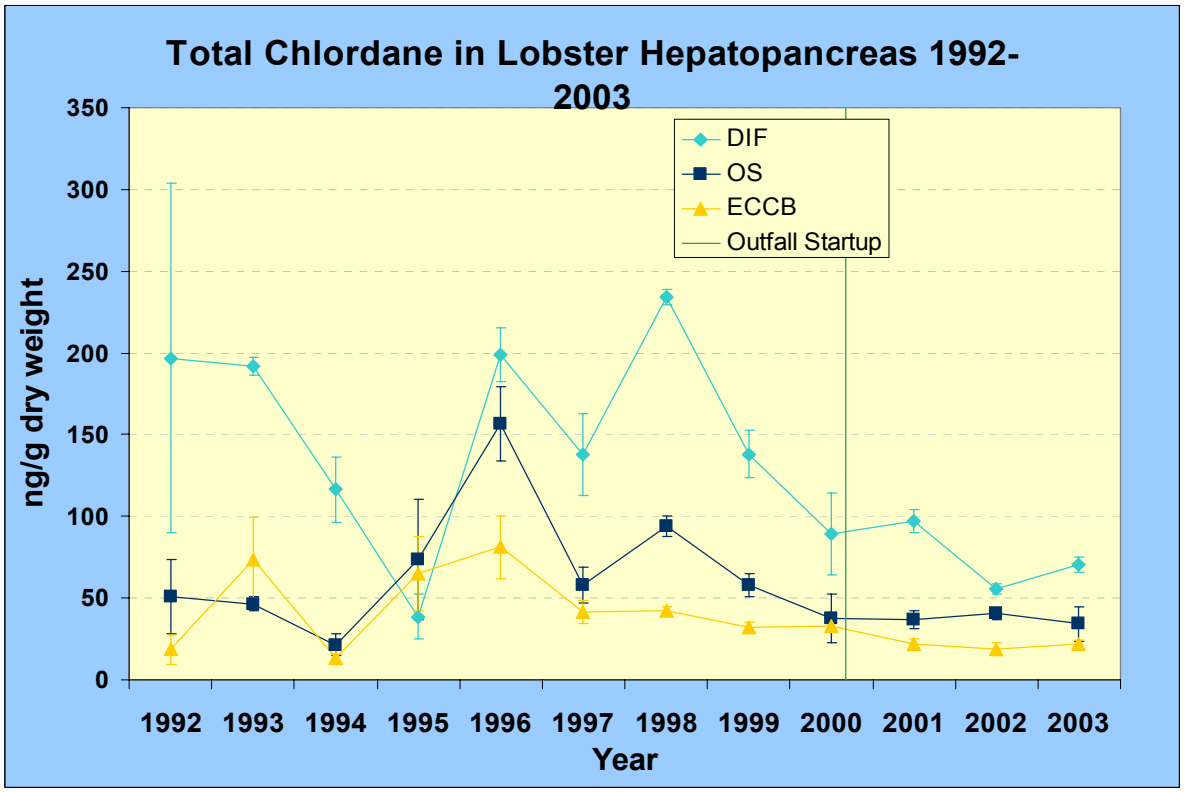


Figure D - 25. Total Chlordane in Lobster Hepatopancreas at DIF, OS, and ECCB from 1992-2003.

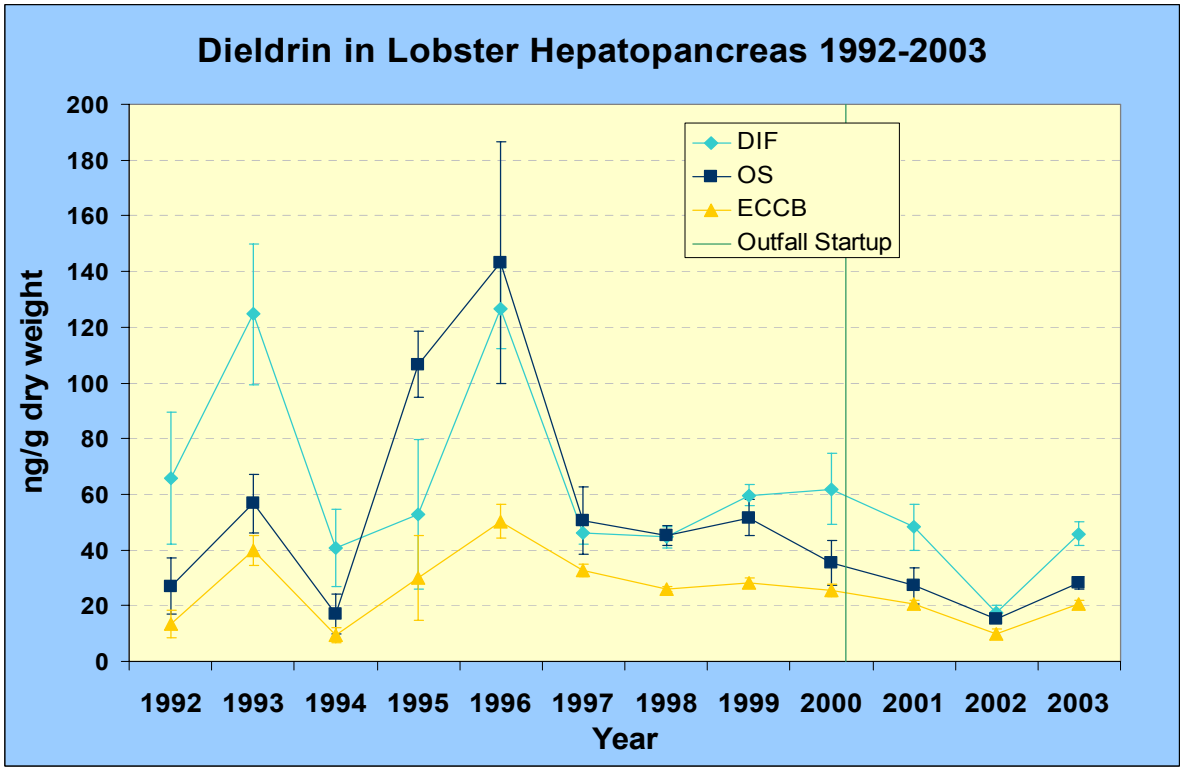
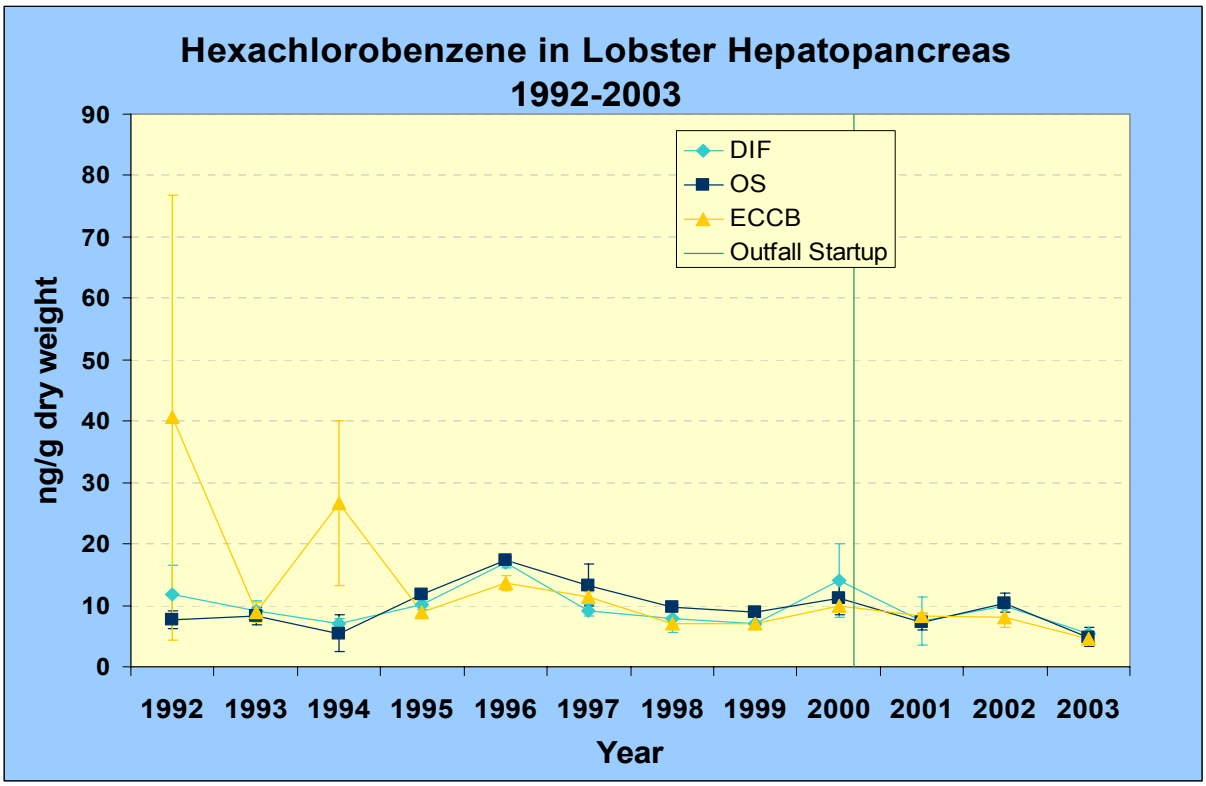


Figure D - 26. Dieldrin in Lobster Hepatopancreas at DIF, OS, and ECCB from 1992-2003.



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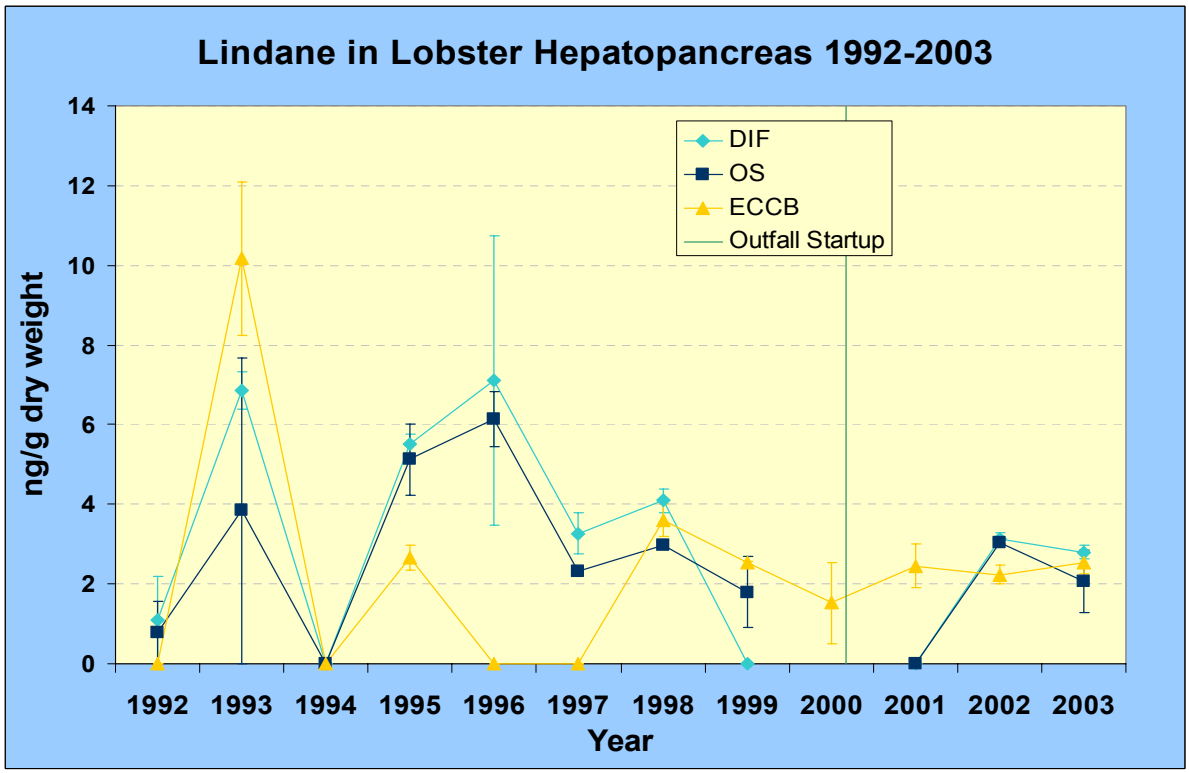
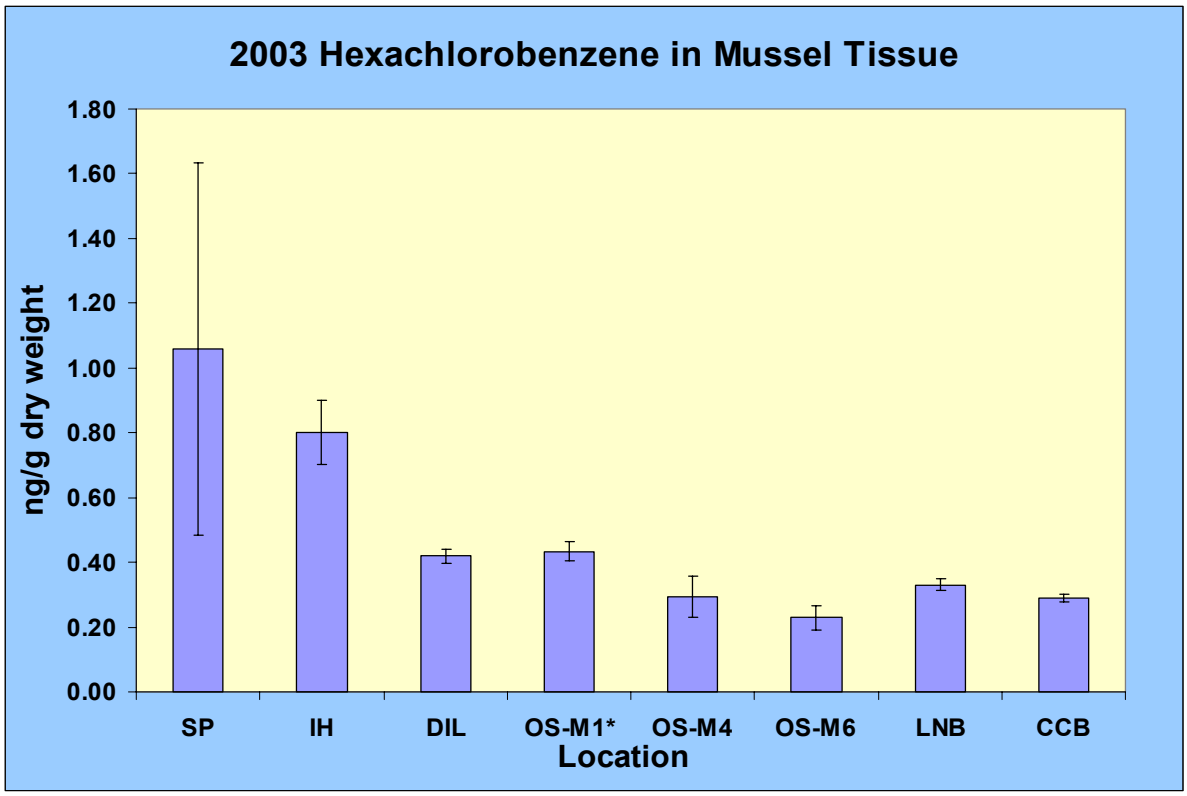


Figure D - 28. Lindane in Lobster Hepatopancreas at DIF, OS, and ECCB from 1992-2003.



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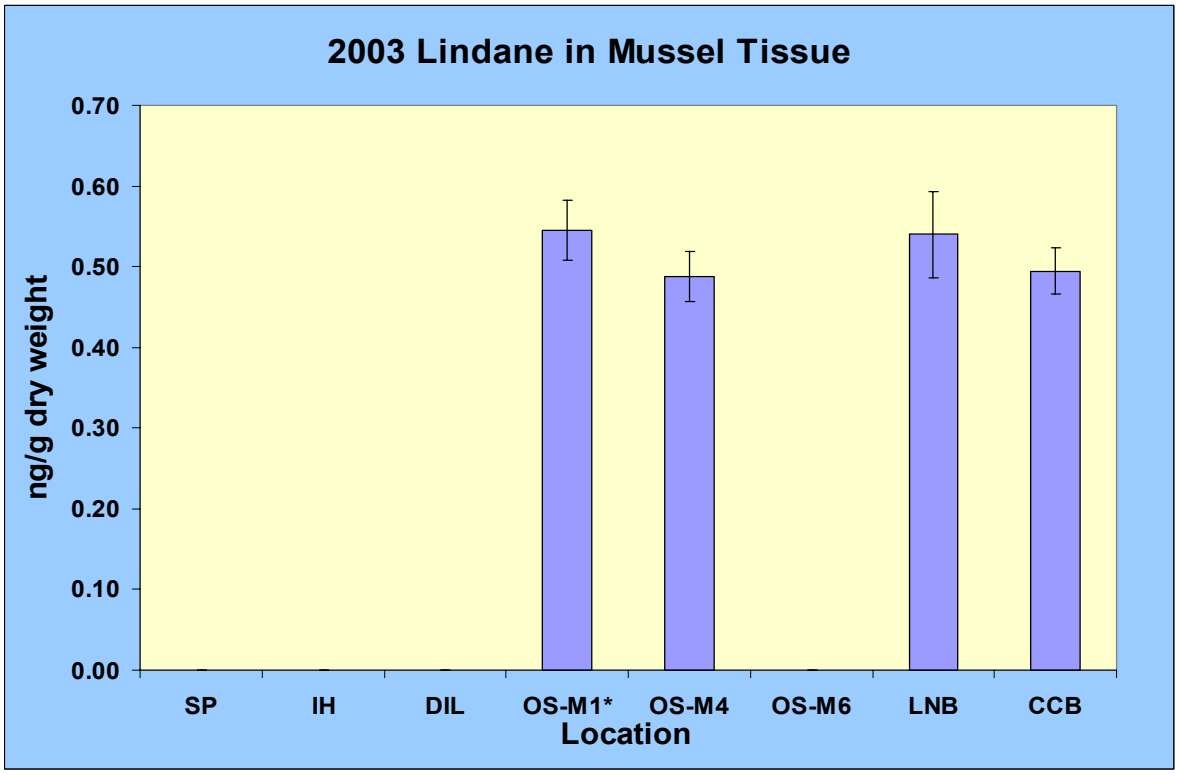

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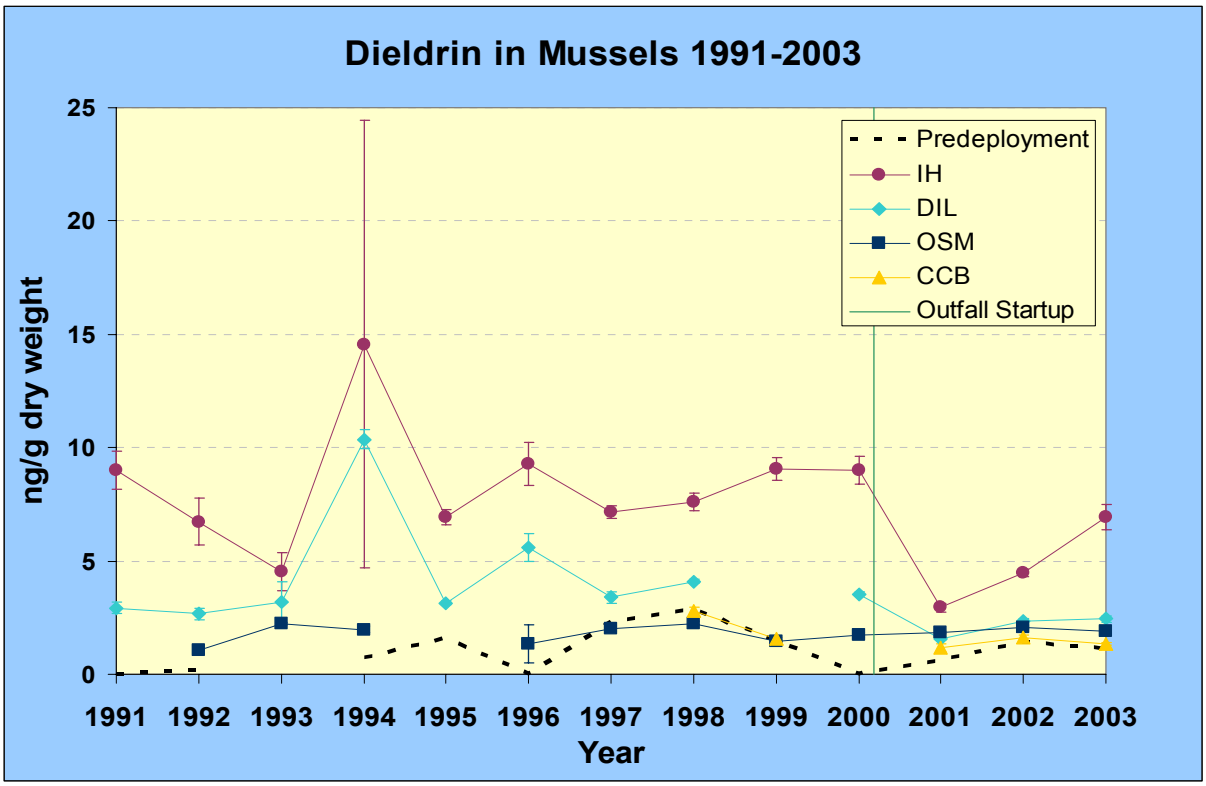

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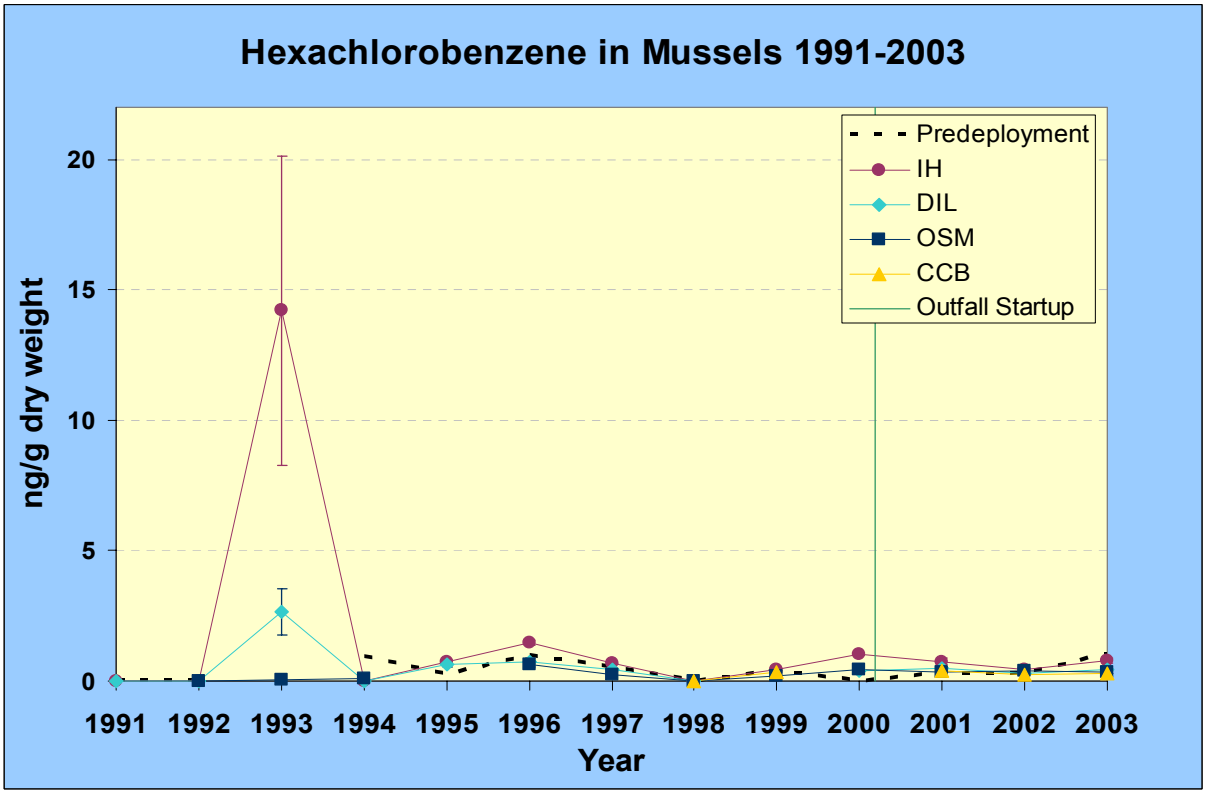

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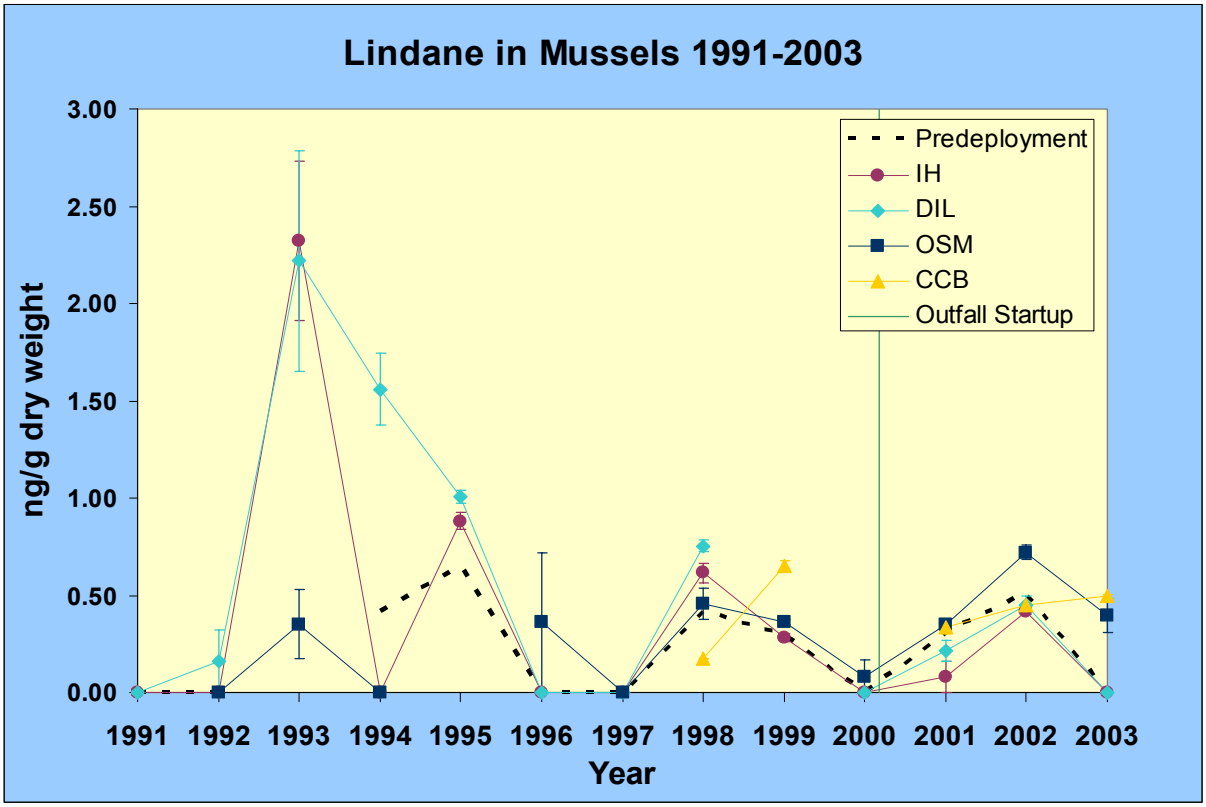

Figure D - 33. Lindane in Pre-deployed and Deployed Mussels from 1991-2003.

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